

JRZ

SUSPENSION ENGINEERING



2010

SUSPENSION SOLUTIONS FOR CHAMPIONS

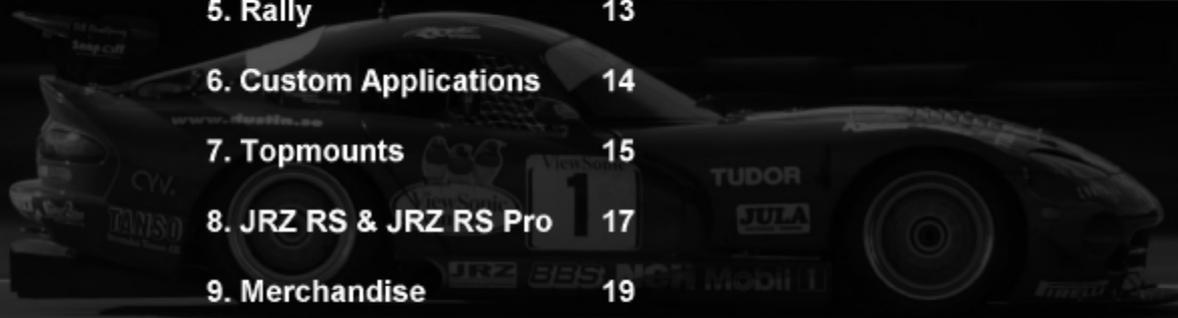
*...The road
to Victory...*



www.JRZsuspension.com

Since the start of the company, JRZ Suspension Engineering is leading the way in suspension design and development for the modern race, rally and high performance road car. JRZ Suspension systems offer the best possible solution for each application in single, double, triple and quadruple adjustable struts and dampers.

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1. People

Jan Zuijdijk

JRZ Suspension Engineering was founded in 1995 by Jan Zuijdijk, where he designed a damper utilizing all his experience he gained since the early sixties.

Jan Zuijdijk worked very close with people like, Carl Godin de Beaufort, Ludovico Scarfiotti, Lorenzo Bandini, Colin Chapman, Emerson Fittipaldi en Jo Siffert. Jan Zuijdijk moved to the USA. Morris Nunn became one of his customers. Morris Nunn has won many races with Pat Patrick Racing in the Indycar-Series. Because of Jan Zuijdijk's renewing involvements, Morris Nunn could celebrate many victories. In the late eighties he worked very closely with Emerson Fittipaldi, where the Indy 500 victory could be captured.

After 20 years of experience in the USA, Jan Zuijdijk decides to move back to Holland. He worked as a consultant for Nissan Europe. In 1994 Jan Zuijdijk designed a new type of shock absorber for Nissan. Nissan was impressed after testing the shockabsorber in Spain where they decided to place a big order, resulting in JRZ Suspension's establishment in 1995.

The performance of the JRZ Suspension shockabsorbers was not kept unnoticed by leading race teams all over the world. Championships were won in many categories of racing like Trans-am, Formula 3, FIA GT, Porsche GT3 Cup, ALMS, World Challenge, etc.



Erik Ras



Since 2000 Erik Ras represents JRZ Suspension. His career started with an internship in 1998 followed by a graduation assignment in 2000 for the University of Automotive Engineering. From the first day he stepped into JRZ Suspension's headquarters he immediately fell in love with the company, which was recognized by Jan Zuijdijk. Jan Zuijdijk saw that Erik delivered a great job while he was performing his internship and graduation. After he finished his school Jan Zuijdijk offered Erik Ras a full time job at JRZ Suspension. Since that time he is doing the sales, customer and trackside support, which gave him the new face of JRZ Suspension. Besides this he is also involved in the development of new products.

2. Factory

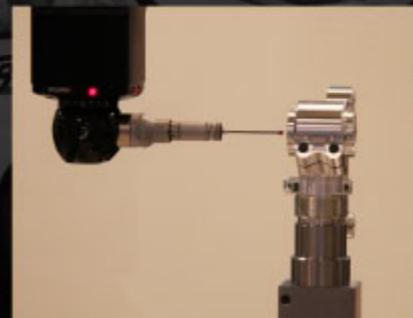
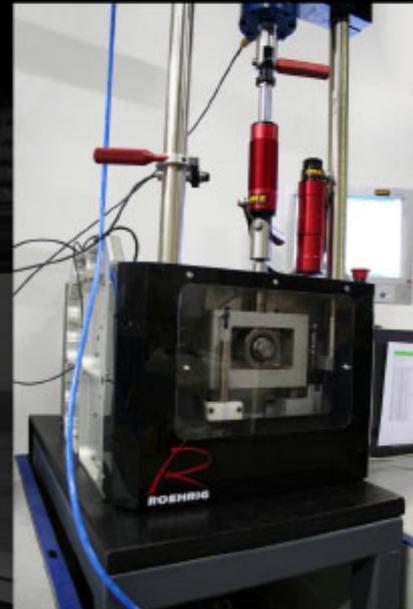
In 2003 Jan Zuidijk found the right partner to secure JRZ Suspension's continuity and quality to make the growth possible JRZ Suspension had created.

A growing company needs to expand and invest ever more in parts and components in order to be responsive to the increasing demands and orders of our customers.

Manufacturing damper parts in house would mean heavy investments in machines and material. At the same time, JRZ Suspension needed to spend time and money in the development in new and advanced product. A successful combination was found in the merging of JRZ Suspension engineering with VOVU, a modern machining company using the most advanced machining equipment available. This merger brought together two companies, JRZ Suspension specializing in design and manufacturing of high quality suspension components and VOVU machining company specializing in high quality parts machining.

This merger offered tremendous advantages for both companies:

- Damper manufacturing and parts supply are located under one roof
- Parts production planning is much easier because of short lines of communication.
- Quality control, using the most advanced measuring equipment available in house
- Parts machining responsive to the production requirements of the order position
- Modern inventory control and ordering system
- Integrated parts, order and book keeping administration
- Integrated, leaner management structure



3. Product design

The JRZ damper is a race proven winning design, incorporating many years of experience in gas hydraulic damper and suspension design, applied to race cars ranging from F1, Indycars, Grand Turismo, Trans Am to all kinds of racing and other applications, combined with a thorough knowledge of vehicle dynamics of modern race cars.

Most modern racing applications call for effective damping control at very small suspension travels in combination with higher frequencies, which results in fairly low suspension velocities, indicating that the most important part of the damping characteristic is in the low piston velocity range, and this is exactly what the experience has taught us, a small change at low piston velocity has a greater effect on car handling than adjusting the mid velocity range, and with this experience in mind JRZ has created a unique design incorporating the essential features to achieve maximal damping control and effective car handling.

There is a trend to minimize the size and physical dimensions of gas hydraulic dampers in the racing industry, which is fine for packaging reasons, but a damper is still a reactive device and can not exert a damping force without being moved, especially dampers of the single tube design will suffer, because there is no sufficient room for gas volume large enough to accept the pistonrod and the simultaneous increase in gas pressure as a result of rising temperatures.



Design features incorporated in the JRZ damper are:

- Large 22 mm pistonrod
- Extruded high strength aluminium body with 44 mm internal diameter
- Unique valving system
- External fluid gas reservoir
- Adjustable compression valving system
- Adjustable bleed through use of exactly measured orifices
- High flow return valve for quick filling of working cylinder
- Large 44 mm piston, with a large diameter non preloaded deflective disc valve system

Pistonrod

The diameter and size of the pistonrod has evolved as a response to ever decreasing suspension travels. In order to create an effective damping characteristic responding to very low velocities, it is necessary to displace fluid, since the suspension travels are so small in modern race car applications, the JRZ design compensates for the lost travel by increasing the cross section and thus the displacement. In single tube damper designs the pistonrod size and displacement are restricted because of:

- A large displacement of fluid could not be accepted by the gas volume without a dramatic increase in back pressure and make the damper feel very harsh over bumps
- A large piston rod diameter would make it difficult to achieve an acceptable damping characteristic.

The JRZ damper design, because of its different design philosophy utilizes the gas pressure available in the external reservoir as an adjustable medium to assist in supporting the chassis, without increasing the springrate, which in fact offers the possibility to keep the natural frequency lower at the small suspension travel required in modern race cars.



Damperbody

JRZ uses a damperbody of high strength aluminium, formed by extrusion, which calibrates the inside diameter to an exact size and results in a very smooth surface finish. The outside is machined to accept adjustable springplatforms and the lower attachment forms one piece with the body. The lower end of the damperbody is connected to the external reservoir with a high pressure fluid hose.



External reservoir

The external reservoir contains the gas volume and fluid reserve separated by a floating divider piston riding on a teflon pistonband for smooth operation. The top of the external reservoir houses the adjustable blow-off valving system, the adjustable bleed and the non return valve responsible for the flow of fluid back to the working cylinder, during the rebound stroke. The blow-off valve seat is tuned to the larger than usual piston rod diameter and responds to the smallest movements of the piston rod. The blow-off valve is spring loaded with belleville washers, allowing the compression forces to be adjusted over a broad range with less than a full turn of the adjuster, offering 16 adjustment positions. The adjustable bleed is located inside the hollow shaft of the blow-off adjuster and can be adjusted to 6 positions. Each position closing of an orifice, starting with size 0.4 mm increasing in increments of 0.1 mm in size with each click of adjustment. This feature is a very effective tuning tool for the set up engineer, experience shows that one tenth of a difference in orifice size can change the handling of a car considerably.

The piston

The piston is designed to operate with non preloaded valves, made from hard anodized 7075 aluminium. The JRZ Suspension design philosophy using non preloaded valves is based upon the observation that deflective discs or shimms as they are known, have a very steep progressive spring rate. When used on a tapered piston of 3 degrees as is common in other design dampers, the preloaded disc will resist the initial opening of the valves and let the damper build up force equal to the preload before opening and releasing fluid, resulting in a harsh feel to the chassis which has to be compensated for by using larger bleeds, the fact remains however that the spring rate increase beyond the preload is very progressive. JRZ utilizes a non preloaded valve stack of deflective discs, which is carefully build up in two phases.



Rebound Valving

The rebound valving stack is build up in two phases. The primary stack consists of a main disc diameter 34 mm and supported by discs, decreasing in diameter according to the damperforce requirements and is responsible for the initial opening of the valves and therefore the low velocity area of the damping characteristic in combination with the adjustable orifices in the piston rod. The secondary or support stack is separated by a small shimm of 0.15 mm from the primary and starts with a 32 mm disc decreasing to 20 mm. The secondary stack restricts the opening of the primary valve stack so that the mid velocity damping force can be increased or decreased by changing the composition of the stack.



Adjustable Orifices

In addition to this valving system, there is a fluid passage from the part of the cylinder above the piston through the hollow piston rod, releasing fluid into the cylinder below the piston through orifices, which can be closed one by one by turning the adjuster wheel and shaft running through the hollow piston rod. Closing off pre-measured orifices is a secure way of keeping the adjustments even between dampers left and right, and is easy to measure the bleed by knowing the number of orifices which are open or closed.



Compression Valving

The compression valve stack is build similar to the rebound stack and initiates the build up of compression damping forces. Important is the transition from free flow through the orifices and opening of the compression valve, this should be as smooth as possible. In compression the piston rod displaces an amount of fluid equal to the volume of the rod, which has to be absorbed by the reservoir. At the same time the cylinder space above the piston has to be filled with fluid, setting into motion a complex series of events inside the damper.

When the damper moves in compression, the piston rod starts to displace fluid, the compression stack builds up force, while resisting opening, and a small amount of fluid starts flowing from below the piston through the orifices to the upper part of the cylinder. With increasing velocity, the compression stack opens, filling the upper part of the cylinder with fluid, while at the same time the compression valving system starts working on controlled release of the displaced fluid into the reservoir, by flowing a small amount through the adjustable orifices and with increasing velocity let it blow-off through the blow-off valve. The gas pressure in the gas volume behind the divider piston continuously pressurizes the system. For a gas pressurized system with external reservoir, having a valving system in between the divider piston and the damper body, to work properly, it is necessary to have a certain equilibrium between the compression valving stack and the blow off valve, because the compression stack has a strong influence on the damping force range of the blow off system.



Gas Pressure

The gas pressure in other designs is often used to keep the fluid compressed and prevents the damping from falling apart. The gas pressure in the JRZ Suspension design serves also a different function. The volume is selected in a way that the fluctuating gas volume and the temperature have little effect on the increase in pressure.

The piston rod completely compressed might increase the pressure by 5% or one bar at an initial pressure of 20 bar. The gas pressure in the reservoir working against the cross section of the piston rod results in an added lifting force of:

$$F = P \times A_{rod}$$

With:

- F = lifting force [kg]
- P = Pressure inside the canister [bar]
- Arod = Surface piston rod [cm²]

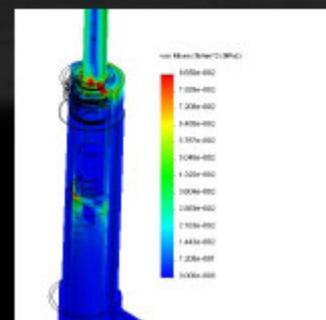
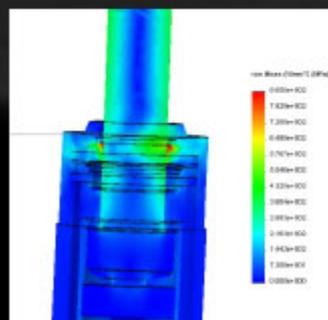
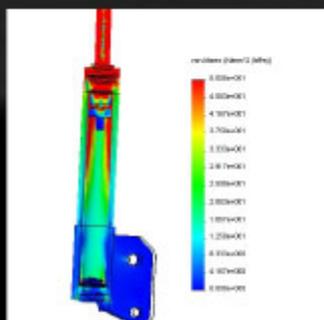
So the lifting force with 18 bar in the canister will be:

$$F = 18 \times 3,80 = 68,4 \text{ kg per corner of the car}$$

The lifting force is always there over the total length of the travel, offering support over the total stroke without adding to the spring rate. Because the JRZ Suspension damper design does not rely on high gas pressure to generate compression forces, it can be very flexible. The gas pressure could be lowered to 4 bar and the damper will still operate at peak performance.

This is the fundamental difference between a single tube design, which relies on the back pressure of the gas charge, to generate compression damping forces and keep the damper operating properly. The JRZ Suspension design operates in rebound as a single tube damper, utilizing a large piston area of 44 mm, large diameter deflection discs for smooth operation and adjustable orifices. In compression however, the JRZ Suspension damper uses design and adjustability features of early twin tube designs, with the benefit, but not relying, on a high pressure gas charge.

To the race car engineer it means greater flexibility, better power down conditions, improved traction and higher lateral G-forces and a controlled but not over dampened chassis.



4. Race Applications

The JRZ racing dampers allow the driver to get the car tuned to their preference. Each adjustment makes a significant change in the damper's characteristic. Every damper is tested and matched on the dyno prior to shipping. All JRZ Suspension dampers are made with the highest quality aerospace materials and manufactured to the highest aerospace standards. The JRZ Suspension race dampers are available as a custom set of dampers or a complete kit with all mounting hardware, top plates and springs included.

Single Adjustable features

- Minimum weight and size
- Precise and accurate 15 positions rebound adjustment
- Oil and gas pressure are separated by a divider piston which makes the damper mountable either upright or upside-down
- Gas pressure is adjusted via schraeder valve and can be set between 100 and 350 psi

Double Adjustable

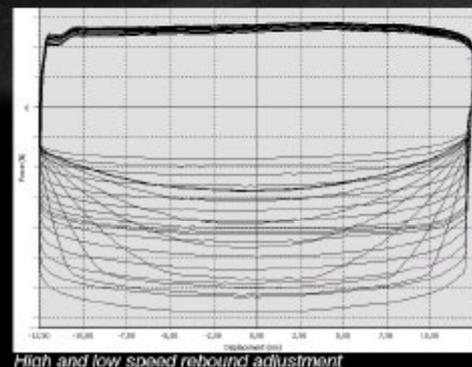
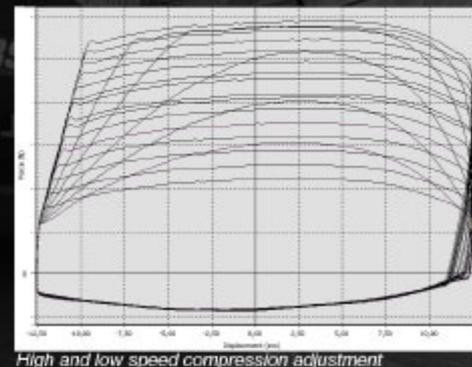
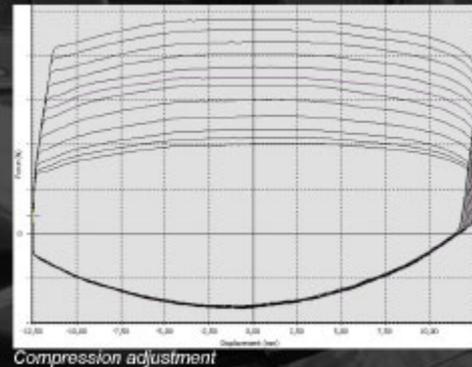
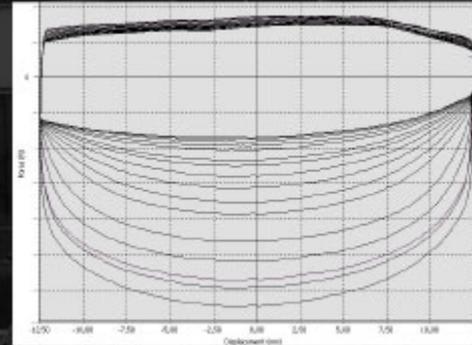
- Same features as single adjustable
- The oil and gas are separated in an external reservoir which can be mounted in a piggyback setup or connected with swivel hoses to suit the vehicles packaging requirements
- Precise and accurate 16 positions compression adjustment

Triple Adjustable

- Same features as the double adjustable
- Precise and accurate 16 position high speed compression and 6 position low speed compression adjustment

Quadruple Adjustable

- The same features as the triple adjustable
- Precise and accurate 16 position high speed rebound adjustment and 8 position low speed rebound adjustment





JRZ Race Applications

| Make | Model | Car Type | Year | Single | Double | Triple | Quadruple |
|------------|-------------------------|---------------------|-------|-----------|-----------|-----------|-----------|
| BMW | 3-serie (non coil over) | E36 | 91-98 | N/A | 11012036K | 12012036K | 13012036K |
| | 3-serie (coil over) | E36 | 91-98 | N/A | 11112036K | 12112036K | 13112036K |
| | 3-serie (non coil over) | E46 | 98-05 | N/A | 11012046K | 12012046K | 13012046K |
| | 3-serie (coil over) | E46 | 98-05 | N/A | 11112046K | 12112046K | 13112046K |
| | 3-serie (non coil over) | E90 | 05- | N/A | 11012090K | 12012090K | 13012090K |
| | 3-serie (coil over) | E90 | 05- | N/A | 11112090K | 12112090K | 13112090K |
| Honda | NSX | | 90-05 | N/A | 11004030K | 12004030K | 13004030K |
| | S2000 | | 99- | N/A | 11004200K | 12004200K | 13004200K |
| Lotus | Elise | mk1/mk2 | 96- | 10003020K | 11003020K | 12003020K | 13003020K |
| | Exige | | 00- | 10003030K | 11003030K | 12003030K | 13003030K |
| | 111R | | 05-07 | 10003040K | 11003040K | 12003040K | 13003040K |
| Mini | R53/R55 | Mk1 | 01-08 | N/A | 11036010K | 12036010K | 13036010K |
| Mitsubishi | Lancer | Evo 7/8/9 | 01-07 | N/A | 11006010K | 12006010K | 13006010K |
| | Lancer | Evo 10 | 08- | N/A | 11006020K | 12006020K | 13006020K |
| Nissan | 350Z | | 03-08 | N/A | 11007350K | 12007350K | 13007350K |
| | 370Z | | 09- | N/A | 11007370K | 12007370K | 13007370K |
| | Skyline | R33/R34 GTR | 93-04 | N/A | 11007030K | 12007030K | 13007030K |
| | GTR | R35 | 08- | N/A | 11007035K | 12007035K | 13007035K |
| Porsche | 993 | C2 | 94-98 | N/A | 11001993K | 12001993K | 13001993K |
| | | C4 | 94-98 | N/A | 11101993K | 12101993K | 13101993K |
| | | Turbo | 94-98 | N/A | 11201993K | 12201993K | 13201993K |
| | | Carrera | 94-98 | N/A | 11301993K | 12301993K | 13301993K |
| | | 996 | C2 | 98-04 | N/A | 11001996K | 12001996K |
| | C4 | 98-04 | N/A | 11101996K | 12101996K | 13101996K | |
| | GT3 | 98-04 | N/A | 11201996K | 12201996K | 13201996K | |
| | GT3 RS | 98-04 | N/A | 11301996K | 12301996K | 13301996K | |
| | GT2 | 98-04 | N/A | 11401996K | 12401996K | 13401996K | |
| | 997 | C2 | 05- | N/A | 11001997K | 12001997K | 13001997K |
| | | C4 | 05- | N/A | 11101997K | 12101997K | 13101997K |
| | | GT3 | 05- | N/A | 11201997K | 12201997K | 13201997K |
| | | GT3 RS | 05- | N/A | 11301997K | 12301997K | 13301997K |
| | GT2 | 05- | N/A | 11401997K | 12401997K | 13401997K | |
| | Boxter | 986 | 96-03 | N/A | 11001986K | 12001986K | 13001986K |
| | Boxter | 987 | 04- | N/A | 11001987K | 12001987K | 13001987K |
| Cayman | 987 | 06- | N/A | 11101987K | 12101987K | 13101987K | |
| Subaru | Impreza WRX STi | GC8 | 92-01 | N/A | 11010009K | 12010009K | 13010009K |
| | Impreza WRX STi | GDA/GDB/GDC/GDD/GDE | 01-04 | N/A | 11010010K | 12010010K | 13010010K |
| | Impreza WRX STi | GDF/GDG | 05/06 | N/A | 11010011K | 12010011K | 13010011K |
| | Impreza WRX STi | GE (N14) | 07- | N/A | 11010030K | 12010030K | 13010030K |



5. Rally

For the special requirements of the demanding Rallye sport, JRZ Suspension developed new high strength adjustable McPherson struts and dampers. The JRZ Suspension McPherson rally strut is designed following the general preferred idea of using the damper body for taking up the heavy side loads encountered by rally cars for stability in cornering.

In addition the JRZ Suspension strut uses the large displacement piston rod to generate a wide adjustment range in compression forces.

The extended adjustment range in compression as well as rebound forces eliminating the need for frequent revalving of the struts and damper

JRZ Suspension rally Features

- Billet machined, TIG welded and nickel plated McPherson struts front and rear
- Upside down mounting for gravel use
- Spring rates can be changed without revalving
- External canisters
- Spherical bearing upper mounts
- Billet machined camber adjustable topmounts
- Complete bolt on kit with springs and all necessary hardware

Benefits

- Large range of adjustment for gravel and tarmac
- Maintain the stability and power down characteristics of the original car with sharper turn in and transition response
- Legendary JRZ customer support with on call engineering

Design and Testing

- Valving and setup designed to enhance on gravel performance
- Tested extensively on gravel, developing settings for optimal ride quality and driveability
- Rally baseline setups developed with professional rally drivers



6. Custom applications

JRZ Suspension offers high performance suspension solutions to car tuners specializing in specific car make or models. Responding to those specific requirements, JRZ Suspension will design a product fitting the application and damping characteristic specified by the car tuner.

Due to the unique production procedure, custom build struts and dampers can be supplied in any quantity or series. Custom build products can be supplied under the tuners own label and logo with the addition, by JRZ Suspension.

JRZ Suspension will assist the customer with technical assistance, tuning the damping characteristic for the specific car application.

| Make | Model | Make | Model |
|----------------------|--------------------------|---------------|-------------------------------|
| Alfa Romeo | 155/145/148 | Lola | Indy Light '97 |
| | 155 V6 TI | | SR1/SR2 |
| | 156 | Lotus | Elise |
| Audi | Guilia | | Elan |
| | S4 | | Esprit |
| BMW | S6 | Mazda | RX-7 1st 2nd 3rd generation |
| | M3 E30 | | 626 |
| | 328i Group N | McLaren | M8 Can Am |
| | M3 328i without roll bar | | F1 |
| Chevrolet | M3 FISA 2000 92/94 | Mercedes | E420 |
| | 318is SCCA GT3 | | CLK AMG Black Edition |
| | E40/E46/E39 | Mitsubishi | Pajero (4x4) |
| | 840/850CSI/E31 | | Lancer EVO 5 |
| | Corvette Camaro | | Lancer EVO 6 |
| Dallara | Corvette 98 C12 | Circle Track | Nascar |
| | Corvette C4 | | Bush Cars |
| | Corvette C5 | Nissan | Micra Race/Rally |
| | Trans Am | | Sunny |
| | Street | | Primera |
| | C7 GT1 | | Skyline R32/R33/R34 |
| | | | GT1 School Car |
| Dodge | F3 97 Elise | Panoz | GT1 School Car |
| | F3 94 | Peugeot | 106 |
| | F3 99 | | 206 |
| Electric car | Viper GTS 97 | | 306 |
| | Viper GTS 98 | | 309 Rally |
| Ferrari | Pinfarina | Porsche | 904 |
| Ford | F323/306/309GT4 | | 908 |
| | F355/348 | | 914 |
| | GT F355 | | 916 |
| | F40 | | 911 GT1/930/935/964/965 |
| | F50 | | 911 986/993/996/996 GTR3R/897 |
| | GT4 | | 928 S2/S4 |
| | F550 Maranello | | 924/944 |
| | 333/333 SP | | 962 |
| | 458GT/458GTA | | 968 Turbo |
| | Formule | Cosworth Race | Renault |
| Escort | | | Clio |
| Fiesta | | | Megane |
| Mustang Shelby GT500 | | Rover | Mini conversion kit |
| Hamier | Focus | Saleen | All models |
| | Renault | Saturn | Saturn |
| | 3/3000 | Subaru | Impreza all models |
| Honda/Accura | GT1 | Sunbeam | Tiger Classic |
| | Commodore | Toyota | Supra |
| Lexus | NSX | TVR | Tuscan |
| | Prelude | Venturi | 260 |
| | Integra Type R | Volvo | V40 Race/Street |
| | S2000 | | 850 Street |
| Lada | Civic race | VW | 600 |
| | Samara Race/Rally | | Golf 1/2/3/4 |
| Lexus | 400 | | Corrado |
| | IS300 | | Scirocco |



7. Topmounts

JRZ Suspension Top mounting plates (also known as camber plates) are designed with the specific needs of each application in mind. Our development process considers the necessary camber and caster adjustments as well as the necessary strength and stiffness for each application. Studs are pressed in for ease of installation and maintenance. JRZ Suspension top mounting plates use grade 12.9 chrome plated hardware. Used in every JRZ Suspension top mounting plate is an aerospace spec metric PTFE coated spherical bearing. Quality bearings dramatically reduce noise and deliver suspension loads smoothly to the chassis for maximum performance. JRZ Suspension top mounting plates are made with the highest quality aerospace materials and manufactured to the highest aerospace standards.





| JRZ Topmounts Applications | | | | | | | |
|----------------------------|-------------------------|---------------------|-----------|--------------|-------------|------------|-----------|
| Make | Model | Car Type | Year | JRZ RS Front | JRZ RS Rear | Race Front | Race Rear |
| BMW | 3-serie (non coil over) | E36 | 91-98 | 50600303B | 50600302B | 50600303R | 50600302R |
| | 3-serie (coil over) | E36 | 91-98 | 50600303B | 50600302B | 50600303R | 50600302R |
| | 3-serie (non coil over) | E46 | 98-05 | N/A | N/A | N/A | N/A |
| | 3-serie (coil over) | E46 | 98-05 | N/A | N/A | N/A | N/A |
| | 3-serie (non coil over) | E90 | 05- | N/A | N/A | N/A | N/A |
| | 3-serie (coil over) | E90 | 05- | N/A | N/A | N/A | N/A |
| Honda | NSX | | 90-05 | 50600602B | N/A | 50600602R | N/A |
| | S2000 | | 99- | 50600603B | N/A | 50600603R | N/A |
| Lotus | Elise | mk1/mk2 | 96- | N/A | N/A | N/A | N/A |
| | Exige | | 00- | N/A | N/A | N/A | N/A |
| | 111R | | 05-07 | N/A | N/A | N/A | N/A |
| Mini | R53/R55 | Mk1 | 01-08 | 50600901B | 50600604B | 50600901R | 50600604R |
| Mitsubishi | Lancer | Evo 7/8/9 | 01-07 | 50600105B | 50600108B | 50600105R | 50600108R |
| | Lancer | Evo 10 | 08- | 50600107B | 50600108B | 50600107R | 50600108R |
| Nissan | 350Z | | 03-08 | N/A | N/A | N/A | N/A |
| | 370Z | | 09- | N/A | N/A | N/A | N/A |
| | Skyline | R33/R34 GTR | 93-04 | N/A | 50600703B | N/A | 50600703R |
| | GTR | R35 | 08- | 50600702B | 50600702B | 50600702R | 50600702R |
| Porsche | 993 | C2 | 94-98 | 50400105B | 50400105B | 50400105R | 50400105R |
| | | C4 | 94-98 | 50400105B | 50400105B | 50400105R | 50400105R |
| | | Turbo | 94-98 | 50400105B | 50400105B | 50400105R | 50400105R |
| | | Carrera | 94-98 | 50400105B | 50400105B | 50400105R | 50400105R |
| | | GT3 | 98-04 | 50400103B | 50400109B | 50400103R | 50400109R |
| | 996 | C2 | 98-04 | 50400103B | 50400109B | 50400103R | 50400109R |
| | | C4 | 98-04 | 50400106B | 50400109B | 50400106R | 50400109R |
| | | GT3 | 98-04 | 50400103B | 50400109B | 50400103R | 50400109R |
| | | GT3 RS | 98-04 | 50400103B | 50400109B | 50400103R | 50400109R |
| | | GT2 | 98-04 | 50400103B | 50400109B | 50400103R | 50400109R |
| | 997 | C2 | 05- | 50400104B | 50400109B | 50400104R | 50400109R |
| | | C4 | 05- | 50400106B | 50400109B | 50400106R | 50400109R |
| | | GT3 | 05- | 50400104B | 50400109B | 50400104R | 50400109R |
| | | GT3 RS | 05- | 50400104B | 50400109B | 50400104R | 50400109R |
| GT2 | | 05- | 50400104B | 50400109B | 50400104R | 50400109R | |
| Boxter | 986 | 96-03 | 50400103B | 50400110B | 50400103R | 50400110R | |
| Boxter | 987 | 04- | 50400104B | 50400110B | 50400104R | 50400110R | |
| Cayman | 987 | 06- | 50400104B | 50400110B | 50400104R | 50400110R | |
| Subaru | Impreza WRX STi | GC8 | 92-01 | 50600205B | 50600204B | 50600205R | 50600204R |
| | Impreza WRX STi | GDA/GDB/GDC/GDD/GDE | 01-04 | 50600203B | 50600207B | 50600203R | 50600207R |
| | Impreza WRX STi | GDF/GDG | 05/06 | 50600203B | 50600207B | 50600203R | 50600207R |
| | Impreza WRX STi | GE (N14) | 07- | 50600208B | 50600605B | 50600208R | 50600605R |



8. JRZ RS & JRZ RS Pro

Using our race winning technology, the JRZ RS and JRZ RS Pro is designed for the performance enthusiast who will be driving on the street and on the track. The JRZ RS and JRZ RS Pro has solid support for roll and pitch with a smooth high speed compression blow-off and rebound to make the ride smooth. Each adjustment makes a significant change in the damper's characteristics, allowing the driver to get the car tuned to his preference. Every JRZ RS and JRZ RS Pro damper is tested and matched on the dyno prior to shipping. As with all JRZ Suspensions, the JRZ RS and JRZ RS Pro is made with the highest quality aerospace materials and manufactured to the highest aerospace standards. JRZ RS and JRZ RS Pro dampers are available as a set of dampers or a complete kit with all mounting hardware, top plates, and springs included.

JRZ RS

- Secure double adjustable 15 position compression and 9 position rebound. When using a McPherson strut you have 15 position compression adjustment
- Twin tube design
- No use of external reservoir for easy installation and the damper is allowed in a lot of club race racing classes
- High pressure nitrogen charge to support the car so lower spring rates can be used



JRZ RS PRO

The JRZ RS Pro takes the JRZ RS one step further by adding an external reservoir which makes this system very close to the race double adjustable damper. The JRZ RS Pro is a double adjustable monotube damper with remote reservoirs mounted on fixed hoses or in piggyback setup for simple installation. Piggyback JRZ RS Pro dampers are available in either a strut or a damper application. The JRZ RS Pro is designed for the performance enthusiast who will spend time on the street and on the track who demands crisper response and more chassis support than the JRZ RS.

- Secure and accurate double adjustable 12 position compression adjustment and 15 position rebound adjustment
- Mono tube design
- External reservoir (with high pressure hose or piggyback configuration)
- Gas pressure is adjusted via schraeder valve and can be set between 100 and 350 psi





| JRZ RS & JRZ RS Pro Applications | | | | | | |
|----------------------------------|-------------------------|---------------------|-------|-----------|------------|--|
| Make | Model | Car Type | Year | JRZ RS | JRZ RS Pro | |
| BMW | 3-serie (non coil over) | E36 | 91-98 | 20012036K | 30012036K | |
| | 3-serie (coil over) | E36 | 91-98 | 20112036K | 30112036K | |
| | 3-serie (non coil over) | E46 | 98-05 | 20012046K | 30012046K | |
| | 3-serie (coil over) | E46 | 98-05 | 20112046K | 30112046K | |
| | 3-serie (non coil over) | E90 | 05- | 20012090K | 30012090K | |
| | 3-serie (coil over) | E90 | 05- | 20112090K | 30112090K | |
| Honda | NSX | | 90-05 | 20004030K | 30004030K | |
| | S2000 | | 99- | 20004200K | 30004200K | |
| Lotus | Elise | mk1/mk2 | 96- | N/A | 30004020K | |
| | Exige | | 00- | N/A | 30004030K | |
| | 111R | | 05-07 | N/A | 30004040K | |
| Mini | R53/R55 | Mk1 | 01-08 | 20036010K | 30036010K | |
| Mitsubishi | Lancer | Evo 7/8/9 | 01-07 | 20006010K | 30006010K | |
| | Lancer | Evo 10 | 08- | 20006020K | 30006020K | |
| Nissan | 350Z | | 03-08 | 20007350K | 30007350K | |
| | 370Z | | 09- | 20007370K | 30007370K | |
| | Skyline | R33/R34 GTR | 93-04 | 20007030K | 30007030K | |
| | GTR | R35 | 08- | 20007035K | 30007035K | |
| Porsche | 993 | C2 | 94-98 | 20001993K | 30001993K | |
| | | C4 | 94-98 | 20101993K | 30101993K | |
| | | Turbo | 94-98 | 20201993K | 30201993K | |
| | | Carrera | 94-98 | 20301993K | 30301993K | |
| | 996 | C2 | 98-04 | 20001996K | 30001996K | |
| | | C4 | 98-04 | 20101996K | 30101996K | |
| | | GT3 | 98-04 | 20201996K | 30201996K | |
| | | GT3 RS | 98-04 | 20301996K | 30301996K | |
| | | GT2 | 98-04 | 20401996K | 30401996K | |
| | 997 | C2 | 05- | 20001997K | 30001997K | |
| | | C4 | 05- | 20101997K | 30101997K | |
| | | GT3 | 05- | 20201997K | 30201997K | |
| | | GT3 RS | 05- | 20301997K | 30301997K | |
| | | GT2 | 05- | 20401997K | 30401997K | |
| | Boxter | 986 | 96-03 | 20001986K | 30001986K | |
| | Boxter | 987 | 04- | 20001987K | 30001987K | |
| | Cayman | 987 | 06- | 20101987K | 30101987K | |
| Subaru | Impreza WRX STi | GC8 | 92-01 | 20010009K | 30010009K | |
| | Impreza WRX STi | GDA/GDB/GDC/GDD/GDE | 01-04 | 20010010K | 30010010K | |
| | Impreza WRX STi | GDF/GDG | 05/06 | 20010011K | 30010011K | |
| | Impreza WRX STi | GE (N14) | 07- | 20010030K | 30010030K | |



9. Merchandise



| <i>Merchandise</i> | |
|--------------------|----------|
| Black cap | 99010100 |
| White polo M | 99020204 |
| White polo L | 99020205 |
| White polo XL | 99020206 |
| Black polo M | 99020104 |
| Black polo L | 99020105 |
| Black polo XL | 99020106 |
| Jacket XL | 99030106 |



10. Recent Victories



JRZ Suspension Victories

| Year | Place | Race/Class | Team |
|------|----------|--------------------|-------------------------|
| 2009 | 1,2,3 | 24h Daytona | TRG, Wright Motorsport |
| 2008 | Champion | Formula Truck | ABF Competições |
| 2007 | 1,3 | 24h Daytona | Alegra Motorsport, TRG |
| 2006 | 1 | 24h Daytona | T.P.C. |
| 2006 | Champion | T2 Run offs | Icy/Phoenix Racing Team |
| 2006 | Champion | World Challenge GT | K-Pax Racing |
| 2006 | Champion | South America F3 | Luiz Razia |
| 2005 | Champion | T2 Run offs | Icy/Phoenix Racing Team |
| 2004 | Champion | Rolex Series | T.P.C. |



JRZZ

SUSPENSION ENGINEERING



SPECIALIST IN HIGH PERFORMANCE DAMPERS