



**KYB**

Distributor  
Training

# KYB

## Information

KYB is one of the world's largest suppliers of Original Equipment (OE) shock absorbers to vehicle manufacturers.



89

bases worldwide, including factories in Japan, Spain and the Czech Republic.



1 in 5

cars leaving production lines worldwide are fitted with KYB shock absorbers as standard.



1 million

shock absorbers manufactured for OE and aftermarket per week.



KYB is Japan's largest hydraulics manufacturer. KYB technology is used by the world famous Bullet Train and many aircraft, including the Boeing 787 Dreamliner.



of KYB coil springs are made in a purpose built KYB factory.

# KYB Product

Alongside tyres, suspension components play a critical part in how a vehicle is operated and managed. Across Europe, **KYB** supplies the following products:

## Shock Absorbers



Keeps tyres in contact with the road, allowing for safe steering and braking. Works to regulate the bounce of a coil spring, pushing it back out to its regular length in a controlled manner.

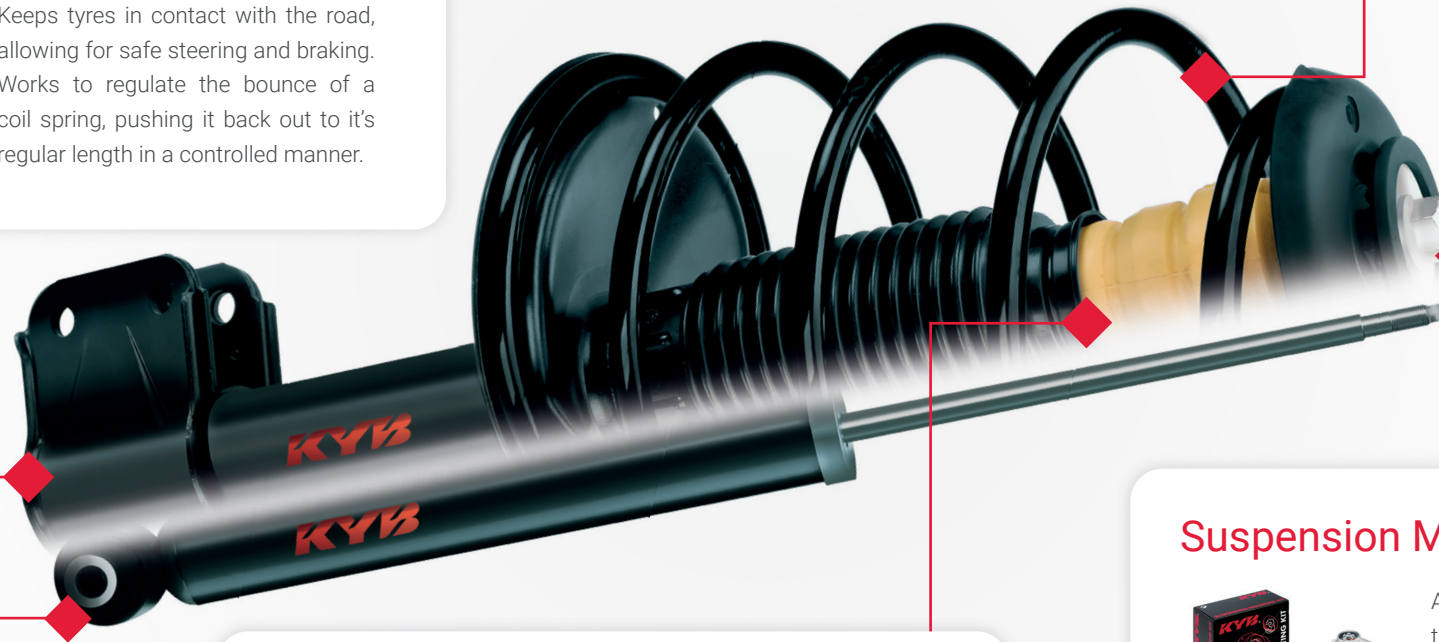
## Coil Springs



Supports the weight of a vehicle and compresses to absorb any bumps or jolts in the road surface. Coil springs also maintain the correct ride height of the vehicle.



[Click here](#) to see how each component works in our 'Inside Suspension Video'



## Protection Kits



Stops dust and dirt from damaging the shock absorber seal. Acts as a cushion, protecting the suspension from contact between the metal body of the shock absorber and the bottom of the Mounting Kit when compressed.

## Suspension Mounting Kits



Allows the steering wheel to turn the tyres and provides a rubber cushion between the chassis and suspension.

# KYB Manufacturing & Factories

KYB has 15 shock absorber factories around the globe, producing approximately 1 million shock absorbers for OE and aftermarket per week. Three of these factories are situated in Europe, as well as one coil spring factory.



**KAMS** is KYB Europe's newest shock absorber factory, built to produce OE shock absorbers for Audi and BMW, as well as for the aftermarket.



**KYBSE** is based in Spain and produces OE shock absorbers - mostly for Peugeot, Citroen, Opel/Vauxhall & Renault, as well as for the aftermarket.



**KMCZ** is based in the Czech Republic and produces OE shock absorbers, mostly for Suzuki, Toyota, Renault & Nissan, as well as for the aftermarket.



**KCME** is a state of the art coil spring factory in the Czech Republic, where 90% of KYB K-Flex coil springs are produced - approximately 3 million per year.

All KYB shock absorbers are subject to rigorous testing to ensure optimum efficiency and safety. This includes:



UP TO **10 MILLION**  
COMPRESSION  
**CYCLES**



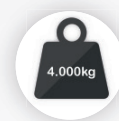
COMPRESSION  
TEST SPEEDS OF  
**5 METRES**  
PER SECOND



**SIDE LOAD**  
FORCES APPLIED OF  
UP TO **300KG**



UP TO **850 HOURS**  
OF CORROSIVE  
SALT SPRAY TESTS



**STRENGTH**  
TESTS UP  
TO **4,000KG**



**FREEZING**  
TEMPERATURES  
DOWN TO **-40°C**




HIGH TEMPERATURES  
UP TO **100°C**



# KYB Testing

**KYB** tests new product at a purpose-built test track in Kashio, Japan. Built in 2011, this \$35 million facility features several tracks designed specifically for the development and testing of suspension and steering components.

**KYB** product sold in Europe also has to pass a vehicle fitting and driving test. **KYB** Europe has a fitting and test centre in France, which includes vehicle lifts, a full range of garage equipment and the latest 3D geometry check technology.



[Click here](#) to watch a video about our test track.



"Private brands" may be cheaper - but that saving is lost when having to replace a faulty unit.



It is much harder to gain a new customer than to retain the same level of business from a current customer. Why risk losing a repeat customer by fitting product you do not know or trust?



Our quality is easy to explain to your customers. **KYB** have been experts in hydraulics for over 80 years, and are supplier to some of the biggest vehicle manufacturers in the world.

## Why Pay More for KYB?



As **KYB** is an OE supplier, you can be sure you're restoring to original or more... never less!



**KYB** provides the technicians with support to find, fit and sell.



**KYB's** warranty rate in Europe is approximately 0.2%.

## KYB OE vs Aftermarket

**KYB** makes shock absorbers for both OE and the aftermarket. There is only one difference between the two:

There is a slight difference in the tuning of the valves. This is because **KYB** aftermarket product is fitted to older cars, meaning the new shock absorber will be fitted amongst older steering and suspension parts. The valves on **KYB** aftermarket shock absorbers are finely tuned to compensate for this.

The materials used, quality control procedures and machines used all remain the same as their OE counterparts. **KYB** aftermarket product therefore retains the optimum quality demanded by vehicle manufacturers, but is tuned to meet the needs of the aftermarket customer.

# KYB Shock Absorbers

KYB has over 4,000 shock absorbers available across several ranges. Each range offers a different type of technology and is designed to help you decide which type of technology is best for your customer. All KYB shock absorbers come with a 2 year unlimited warranty from date of fitment.

Shock absorbers are critical to safety. With just one worn shock absorber, stopping distances at 30mph/50kph can increase by up to two metres.



## KYB Premium

- ◆ Oil twin-tube unit
- ◆ Available as struts, shocks and cartridges for cars, 4 x 4 and LCV.
- ◆ Replacement for vehicles with OE oil, restoring to OE performance.
- ◆ Part number prefixes: 44xxxx : Shock Absorber  
66xxxx : Cartridge  
63xxxx : Strut



## KYB Excel-G

- ◆ Gas twin-tube unit
- ◆ Available as struts, shocks and cartridges for cars, 4 x 4 and LCV.
- ◆ Replacement for vehicles with OE gas, or an upgrade for those with OE oil.
- ◆ The most popular option at OE level, applied to 85% of cars.
- ◆ Part number prefixes: 34xxxx : Shock Absorber  
36xxxx : Cartridge  
23/33xxxx : Strut



## KYB Gas-A-Just

- ◆ Monotube gas shock absorber.
- ◆ Available for cars and 4x4.
- ◆ Replacement for vehicles with OE monotube gas, or an upgrade with OE twin-tube units.
- ◆ Monotube design more responsive and provides additional control. A higher performance unit.
- ◆ Part number prefixes: 55xxxx : Shock Absorber



## KYB Ultra-SR

- ◆ High pressure twin-tube/monotube gas unit.
- ◆ Available as struts, shocks and cartridges for sports cars or cars towing heavy loads.
- ◆ Upgrade for sports vehicles with OE regular gas or monotube units.
- ◆ Unit has harder damping force, enabling more responsive holding and steering.
- ◆ Part number prefixes: 24xxxx : Monotube Shock  
35xxxx : Twin-tube Shock  
32xxxx : Strut  
37xxxx : Cartridge



## KYB AGX Range

- ◆ Adjustable twin-tube gas unit. 4 or 8 adjustments via either a dial on unit or on top of piston rod.
- ◆ Available as struts, shocks and cartridges for sports cars.
- ◆ Damping rate can be adjusted without removal.
- ◆ Part number prefixes: 76xxxx : Cartridge  
74xxxx : Shock Absorber  
73xxxx : Strut

# Inside a Shock Absorber

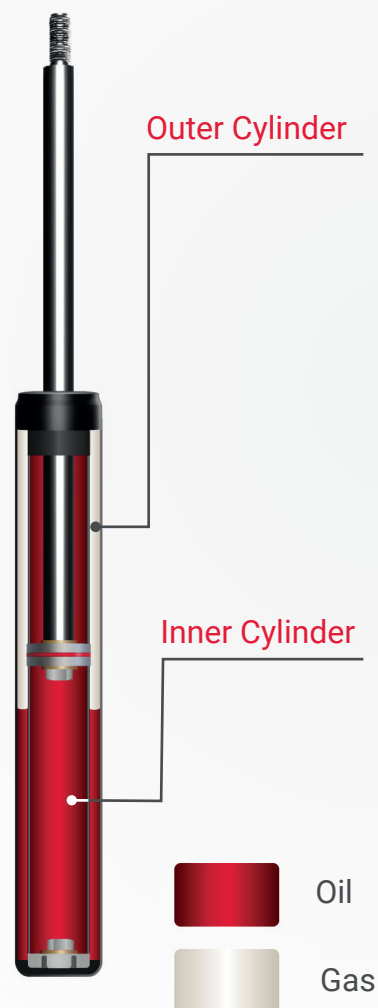
## Twin-tube vs Monotube



Want to see the inside of a shock absorber in action? [Click here](#)

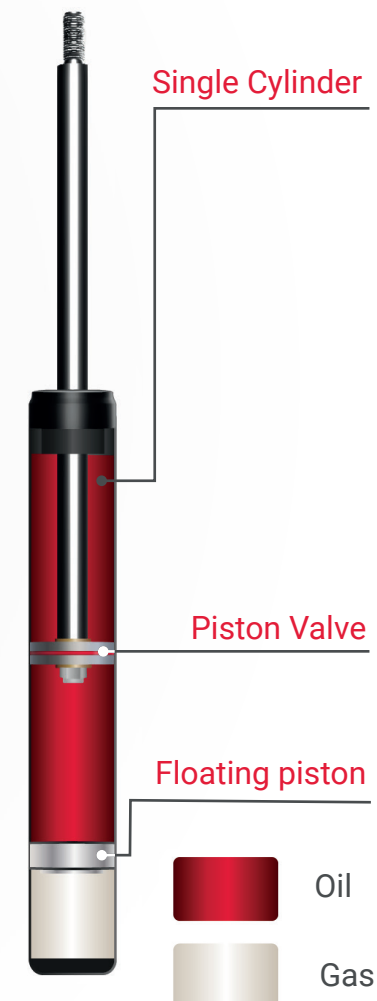
### Excel-G Twin-tube

- ◆ A twin-tube shock absorber has **two cylinders**; an **outer cylinder** and an **inner cylinder**.
- ◆ They contain both oil and pressurised gas. The required resistance is created by the oil passing from inner to outer tube through a number of carefully calibrated valves.
- ◆ This is the most popular OE choice, however under extreme conditions or vigorous driving, the oil and gas can mix, resulting in a loss of performance. We recommend an upgrade to mono-tube if the customer is likely to drive in this manner.
- ◆ Gas in a twin-tube is under approximately 2.5 bar of pressure.



### Gas-A-Just Monotube

- ◆ A monotube shock absorber has just **one big cylinder**, instead of two.
- ◆ Gas and oil is physically separated by a floating piston, so no risk of aeration.
- ◆ A bigger piston valve means a wider area of pressure, providing a more precise, responsive damping force.
- ◆ Gas in a monotube unit is between 25 and 30 bar of pressure.



# KYB Coil Springs

## Constant vs Taper Wire

You may have noticed that for some mini-block (oval shaped) coil springs, **KYB** offers a choice: a constant wire or taper wire design.



Many of our competitors only offer the aftermarket constant wire spring, **KYB** offers a full range of both constant and tapered wire.

The two behave in completely different ways. For this reason, they should never be mixed on the same axle.

## Side Load Springs

Used on many modern cars, side load springs - otherwise known as “banana” springs - look slightly different to parallel springs, as they are slightly curved. As such, they often result in a call back to the distributor to ask why.



### Taper Wire

- ◆ Part numbers begin with RJ.
- ◆ Wire gets thinner towards the end of the spring, so the coils compress neatly inside one another.
- ◆ The larger the bump, the more the spring compresses, hence the “progressive” rating.
- ◆ This design matches the OE spring that will be on the vehicle.



### Constant Wire

- ◆ Part numbers begin with RX.
- ◆ The wire is a constant diameter, so the spring will compress uniformly at the same time, hence the “linear” rating.
- ◆ This option provides a competitively priced aftermarket design alternative.



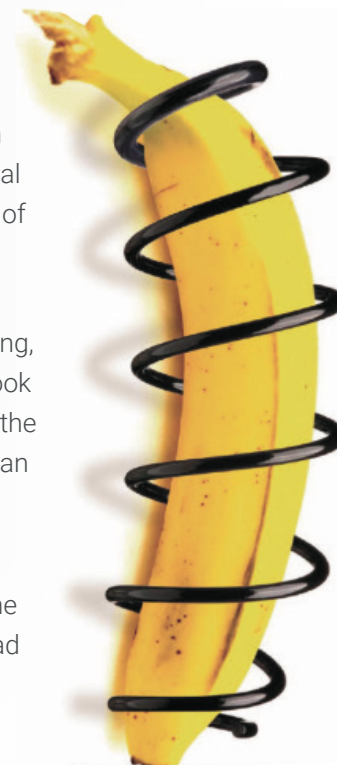
They are designed to reduce the pressure exerted on the piston rod, minimising friction between the piston rod and seal and therefore prolonging the life of the shock absorber.



When removing an old spring, the side load spring can look very different leading to the misconception that there is an issue with the new spring.



However, once placed under the full weight of the car, the side load spring will compress straight.





# KYB Mounting Kits

Mounting kits are a vital component in a vehicles suspension system. They provide a rubber cushion between the chassis and suspension, helping to reduce stress on the suspension by absorbing vibration.

They can also include a bearing which allows the steering wheel to turn the suspension column and the wheels. It ensures that the steering wheel returns to its natural straight position if released.



**Rubber Cushion**



**Bearing**

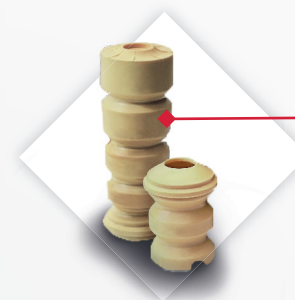
Mounting kits work just as hard as shock absorbers. To ensure smooth steering and passenger comfort, mounting kits should be replaced at the same time as shocks and springs.

**KYB** offers a full range of mounting kits - this means the mount, bearing and all nuts, screws and other accompanying items are included. The part number for these always begin with "SM". Take care when comparing these to a competitor, as many of them will not offer the full kit.

**KYB** now also offers a limited range of part kits for when a full one isn't necessary. These part numbers always begin with "MB" and just contain the bearing.

# KYB Protection Kits

Protection kits comprise of a bump stop and a dust cover.



**Bump Stop**

For moments of complete piston rod compression, providing a cushion to prevent "bottoming out"



**Dust Cover**

Protects the oil seal and the piston rod from road debris as well as dust, ice/slush and corrosive salt.

All **KYB** protection kits are supplied in pairs. They should always be replaced when the shock absorber is replaced, in order to protect and prolong its life.



**Sales Tip:** When selling shock absorbers, ask "how long do you want to keep your car?" as protection kits will extend the life of their new shock absorbers for relatively little cost.

# Finding the correct KYB part

There are **three** different ways in which you can find the correct **KYB** part:

1

## KYB Catalogue



**KYB** has two different catalogues: one for shock absorbers, mounting kits and protection kits and the other for coil springs.

2

## TecDoc



**KYB** is an official A-Rated data supplier to TecDoc.

3

## Online Catalogue



Available at [www.kyb-europe.com](http://www.kyb-europe.com) or on the **KYB** Suspension Solutions App.

[Click here for more information](#)

# KYB Suspension Solutions

**KYB** has a number of tools available to help distributors and workshop.



## 360° Product Images

**KYB** struts and semi struts are available to view in 3D on the **KYB** website. The user can rotate and zoom in on the image, and compare to the unit being replaced.

This ability to compare in detail helps to ensure the correct part is being chosen for the job, increasing efficiency and reducing returns.



## KYB Suspension Solutions App

**KYB** has a free App specifically designed to help technicians identify and sell replacement parts for vehicles with worn suspension components.

## Fitting Videos

**KYB** has a library of over 130 fitting videos available on YouTube - with over 5 million views so far! They are part specific, featuring parts that are known to be difficult to fit.



[Click on each image to access the support tool.](#)

For a more indepth training experience, **KYB** is offering online training to distributors and workshops.

To request your training with a member of the **KYB** technical team, please **click here**.

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