



## **Kilen History**

Kilen began life in 1675 as an iron mill, just a few hundred meters from today's modern factory. In 1849 the company began producing wire and wire rope, and 3 years later the first coil spring was designed and manufactured.

From the mid 1930s Kilen began expanding rapidly, through both organic growth and acquisitions; and was itself acquired in 1989 by industrial investment group Beijer Alma AB.

Since then growth has continued, and today Kilen Springs are positioned as one of the largest and most diverse spring manufacturing groups in the world.

## **Sport Spring Kits**

Kilen sports springs will safely lower your car by up to 50mm, substantially improving road holding and providing a sportier driving experience. Every kit is designed to be fitted with the original shock absorbers, but gas shock absorbers can be used to further enhance the ride.

Spring Design - Lowering a car while improving steering and suspension performance requires expert knowledge, not only of suspension design, but the reaction of the entire chassis to a lower centre of gravity.

Manufacturing - Kilen sports springs are manufactured using the same multi-part process as standard coil springs to ensure quality and performance.

Quality - Kilen work closely with international standards and certification organisations to guarantee continual high quality.

# Sport Spring Design

Kilen Sports Lowering Spring kits are designed to lower a car by as much as 50mm, to provide a sportier driving experience. By lowering the car's centre of gravity and increasing the stiffness of the spring, road handling is substantially improved. Kilen Sports Springs are designed with a high degree of accuracy using specialist design software developed in-house.

Kilen Sports Springs lower the vehicle by between 20 - 50mm, which is considered moderate by some. However, Kilen Sports Springs are designed for a sportier driving experience rather than purely for aesthetic purposes. Springs which lower by more than 50mm often reduce or eliminate the spring travel distance, negatively affecting spring performance and creating problems coordinating with standard or gas shock absorbers.

Lowering a car's centre of gravity and increasing the stiffness of the springs reduces body roll, making the car stick to the road while cornering. 'Nose dive' caused by braking and 'squat' during acceleration are also reduced.

# Sport Spring Manufacturing

Springs have been manufactured by Kilen since 1852 and today Kilen is the largest manufacturer in Europe for aftermarket chassis springs.

Kilen's state of the art factory is designed to meet the demands of quality, flexibility and environment for many years into the future.

Every spring is manufactured from high quality spring steel. Depending of the design, oil-quenched or unquenched wire is used. When oil-quenched wire is used all springs are stress relieved directly in line after the coiling process. Springs manufactured from unquenched wire are quenched and tempered after the coiling operation, giving the spring high strength without the need for stress relieving. In both cases the steel will have the same spring quality characteristics.

The wire is cold formed to spring shape in computer controlled automatic coiling machines. When oil quenched wire is used, all springs are stress relieved. This treatment improves the fatigue strength.

Some chassis spring designs have one or both ends ground. At Kilen this grinding is done in special computer controlled spring grinding machines.

All springs are protected from corrosion by zinc phosphate and powder resin paint. This technique gives an excellent protection against corrosion, even if there is a chip or a scratch in the paint surface. It also meets the standards used by vehicle manufactures.

# Sport Spring Quality

Most Kilen Sport Springs are TÜV compliant. Kilen are certified to the ISO/TS16949:2009 quality management system.

This automotive sector-specific quality management system applies to design, development and production of automotive products at Kilen.

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All coil springs delivered by Kilen are quality assured and manufactured by the company. Kilen only use spring steel material from suppliers who can meet the highest demands for both internal and surface quality. All suspension spring designs are quality verified and manufactured with the best technologies available.

The load and deflection parameters are assured by quality control throughout the production process. To verify that the result is within given tolerances a final load testing of every batch is made before surface treatment, as shown to the right. The load at rebound length, length at kerb weight, load at bump length and the spring rate are the most important measurements.

Surface treatment is made with an advanced zinc phosphate system method, which together with powder paint ensures galvanic protection against corrosion, and a good cosmetic finish.

The large number of spring products in the aftermarket and the importance of identifying the correct product make identification labelling very important. To guarantee the most accurate and secure identification of the spring the ID number should follow the spring through the manufacturing process.

At Kilen, each spring is clearly identified from the first production step until the inkjet identification number is applied to each single spring in the painting line.