This motto has been the inspiration for the SCHERDEL Group’s 29 global locations to ensure local presence in key areas. This also applies to the valve spring division with manufacturing facilities in Germany, France and China.

Besides promoting the internationalisation of the locations, the Company continues to focus on increasing quality and performance levels.
Material selection is decisive for the quality of the spring

Material selection is a crucial factor when it comes to developing new valve springs. This is the reason why SCHERDEL works very closely with international steel and wire manufacturers. The research and development division within the SCHERDEL Group is an accredited research facility that supports national and international research projects.

Production synergies

Synergies that benefit both customers and industry are developed within the SCHERDEL Group, which, in addition to valve spring production, is able to combine and utilise know-how from its R&D, machines and systems and tool making divisions. In-house developed production installations and high-performance special machines save time and money while optimising delivery conditions. The Company is a world leader both in terms of quality and value for money.

Quality is not a coincidence

SCHERDEL determines the actual load during subsequent real-life operation through dynamic testing on the externally driven engine. Fatigue tests are used to ensure continuous high quality during intensive series production as well as to investigate new valve spring materials and production processes.

Research and development

Besides offering a comprehensive testing service to support standard incoming quality controls, the research and fundamental development division with its affiliated laboratory also focuses on the assessment of new material sources and spring materials. Testing of the wire's surface quality and material structure is carried out using a scanning electron microscope with EDX analysis. Optimum stress distribution is measured with the aid of a X-ray diffraction technique.

More than 100 years of SCHERDEL valve springs

The SCHERDEL Group has been leading the way in valve spring production with its innovative approach for more than 100 years. Some of the first engines produced by Rudolf Diesel contained SCHERDEL valve springs. As a key supplier, the Company has always guaranteed the high performance and reliability of engines. Success on the race tracks of the world were also victories for SCHERDEL valve springs.

Valve springs: extremely high-loaded components – from design stage to series production

The technical demands placed on extremely high-loaded components

Valve springs are designed for very high load. Therefore, SCHERDEL always works closely with customers to meet the technical demands placed on a new valve spring. This involves a kinematic study of the valve train to determine the load level, the static dimensioning of the springs (wire profile, material, spring shape, etc.) as well as simulation-based calculations. Other key objectives that guide our efforts are the reduction of CO2 emissions and the weight of vehicles.

Milestones of valve spring production:

- Introduction of the shot-peening process in Europe
- Introduction of assembly-line production
- Introduction of SCHERDEL-Ultra, an optimised hot setting process
- Introduction of stress-optimised production (SOP)
- Introduction of induction processes for optimising the energy balance

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Spring production is linked to the quality assurance, planning and work scheduling divisions via a data network. Stress-optimized production (SOF) ensures the high level of quality to meet demands.

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Optimum stress distribution is measured with the aid of x-ray diffraction techniques.
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Ongoing development

The SCHERDEL Group is committed to ongoing research and development efforts, much of which is aimed at reducing CO2 emissions and improving the energy balance. This commitment has helped SCHERDEL valve springs achieve a high level of quality to meet demands.

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New products to meet ever growing demands

Our development focuses on our customers’ needs

The latest valve spring dimensioning methods and simulation-based calculations ensure SCHERDEL valve springs meet customers’ demands for outstanding smoothness. The development of new, more efficient materials and the resulting continuous optimisation of production methods allow us to produce lightweight valve springs with reduced assembly space. This ultimately leads to the production of more aerodynamic vehicles with less drag coefficient that offer high performance, high torque and reduced fuel consumption. The application of optimisation strategies at all stages of development and production guarantees greater reliability and sustainable CO₂ reduction for motor vehicles.

Global locations of the SCHERDEL Group

Think global – Act local

This motto has been the inspiration for the SCHERDEL Group’s 29 global locations to ensure local presence in key areas. This also applies to the valve spring division with manufacturing facilities in Germany, France and China. Besides promoting the internationalisation of the locations, the Company continues to focus on increasing quality and performance levels.

Valve spring manufacturing locations

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Our development focuses on:

- New materials
- State-of-the-art production installations
- Optimised production processes
- Extensive spring-dimensioning service
- High-tech valve spring production installations

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Global locations of the SCHERDEL Group

Valve springs
High-tech products for combustion engines – from design stage to series production