SCHERDELnews

REPORTS ON RESEARCH AND DEVELOPMENT, MANUFACTURING, MATERIAL TECHNOLOGY AND THE PRACTICAL APPLICATIONS OF ENGINEERING SPRINGS AND ON THE SYSTEMS, MACHINERY AND TOOLING DIVISIONS OF THE **SCHERDEL***GROUP*

EDITION 1/2014 E

MECHANICAL ENGINEERING – TECHNOLOGY & PRODUCT DEVELOPMENT – NEWS AND INFORMATION

Dear Reader,

Developments were quite favourable from our point of view last year despite ongoing financial uncertainty in the European automotive market. The reasons for this are twofold: firstly, the implementation of our successful internationalisation strategy and, secondly, the extensive development services which SCHERDEL offers its clients for the implementation of new techniques and products. Some of the featured articles in this edition of SCHERDEL*news* demonstrate our outstanding level of commitment in the electromobility sector, for instance. A lack of defined standards in this area means our customers profit greatly from the high degree of flexibility shown by our development teams and production facilities. SCHERDEL's ever-growing portfolio currently demands a significant investment in the construction of new industrial units that will allow us to continue delivering high-quality components 'just in time' in the future. Our mechanical engineering division is also heading in the right direction, thus providing a solid platform for the success of the SCHERDEL*Group*. Nonetheless, we must focus on the importance and exploitation of synergies which can improve efficiency in this area of the Group. Therefore, let us continue working together in 2014, making sure we remain the partner of choice for our customers.

Walter Bach
Group Managing Director

Spotlight on hybrid technology

SCHERDEL – a major driver of new technologies in various fields

It is not long since the word 'electromobility' was on everyone's lips and the German federal government set itself ambitious goals to introduce new technologies for private car users, aimed at reducing energy consumption and protecting the environment. However, it would be hard to dispute that so far the reality has not lived up to all the initial hype; particularly in view of the fact that there are still no reliable long-range batteries on offer. It is no wonder then that the number of privately registered electric vehicles in Europe leaves a lot to be desired. Fortunately, there are sufficient other opportunities for mobility promoting technologies which enhance efficiency while placing less of a burden on the environment. Hybrid engines, energy recovery when braking and new transmission technologies that considerably reduce fuel consumption immediately spring to mind in this context. The engineers and developers of the SCHERDEL*Group*, which nailed its allegiance to 'innovation' and 'environmental protection' to the proverbial mast many decades ago as a key component of its corporate philosophy, have been at the forefront of new and ground-breaking concepts since the first indication of a fundamental shift towards electromobility. Needless to say, they had the necessary degree of proficiency to initially further develop feasible technologies that offer a relatively short 'time-to-market' and serve as an important link to concepts for fully electric drives. Read more about this in the following articles. *(dk)*

Components for power elec

Technické pružiny SCHERDEL s.r.o. – specialist for

Contact

Technické pružiny
SCHERDEL s.r.o.
Prúmyslovy aréal Vysocany
34802 Bor u Tachova
Czech Republic

Tel.: +420 374 702 111
Fax: +420 374 702 112

Production contact

Markus Uhl,
Plant Manager Technické pružiny
Tel.: +420 374 7021-22
Email:
markus.uhl@tps.scherdel.com

Sales contact

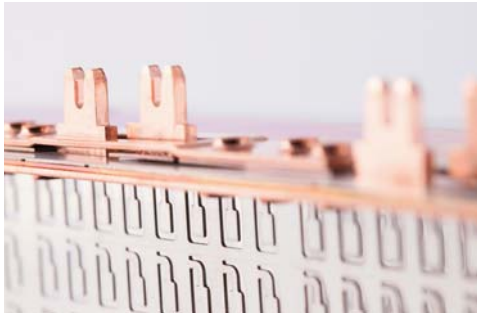
Oswald Skrobatz,
Sales / Coordination Electro-mobility
SCHERDEL GmbH
D-95615 Marktredwitz

Tel.: +49 9231 603-116
Email:
oswald.skrobatz@scherdel.de

The Czech subsidiary Technické pružiny SCHERDEL s.r.o. continued to inspire its automotive customers in 2013 with innovative and cost-effective solutions for passenger cars, including electric vehicles. Thanks to the advantage of its location (BCC = best cost country) and cutting-edge infrastructure, the company is able to offer prototypes, as well as small and large-scale production runs at attractive prices.

Customers profit from the high level of flexibility demonstrated by the specialists for metal and composite materials. In the electromobility sector, SCHERDEL's Czech subsidiary works closely with its customers to develop components and assemblies for hybrid and electric vehicles before they go into series production. There is still a clear lack of defined standards in this field of research, which has resulted in a large number of technical solutions that vary greatly from manufacturer to manufacturer. It means parts suppliers, in particular, are required to provide more diverse, flexible and complex components 'just-in-time' in a technically and economically ideal way.

Due to its locational advantages (BCC), the production plant in the Czech Republic is also able to provide single prototypes and small production runs at cost-efficient rates – a situation in which the entire SCHERDEL*Group* and its customers profit. Even complex components can be manually produced. The production processes can be semi or fully automated at any time as a result of the extensive range of machinery and the wealth of know-how. Transition from small to large-scale production is a fast and efficient procedure, both in Bor and throughout the SCHERDEL*Group*.



The busbars utilise the pressure-joint procedure.

Outstanding pioneering achievements for alternative drives

Rapid and accurate identification and realisation of customer demands is essential for prototyping, particularly in the field of development. Although the electromobility sector is still in its infancy, the SCHERDEL location in Bor already offers decisive advantages. The extensive skills and knowledge of the SCHERDEL*Group* in, among other things, metalworking and material science facilitated the Czech subsidiary's entry into the electromobility market.

Laser welding is ideal for processing highly conductive copper.

Non-ferrous metals with various coatings are used primarily for these components. Supplier parts for electric vehicles demand the application of highly conductive metals. This includes copper and increasingly also a combination of copper and aluminium in a wide variety of sizes and geometries.

Many challenges arise when producing components for the power electronics and high-volt batteries. The dielectric strength and thermal conductivity of these components is of particular importance. The plant in Bor employs leading-edge joining processes, such as laser welding, ultrasonic welding and resistance welding with a brazing filler, so as to guarantee economic production. This helps to ensure top quality joints when joining different materials. Find out more about these procedures in the next edition of SCHERDEL*news*.

tronics and high-volt batteries

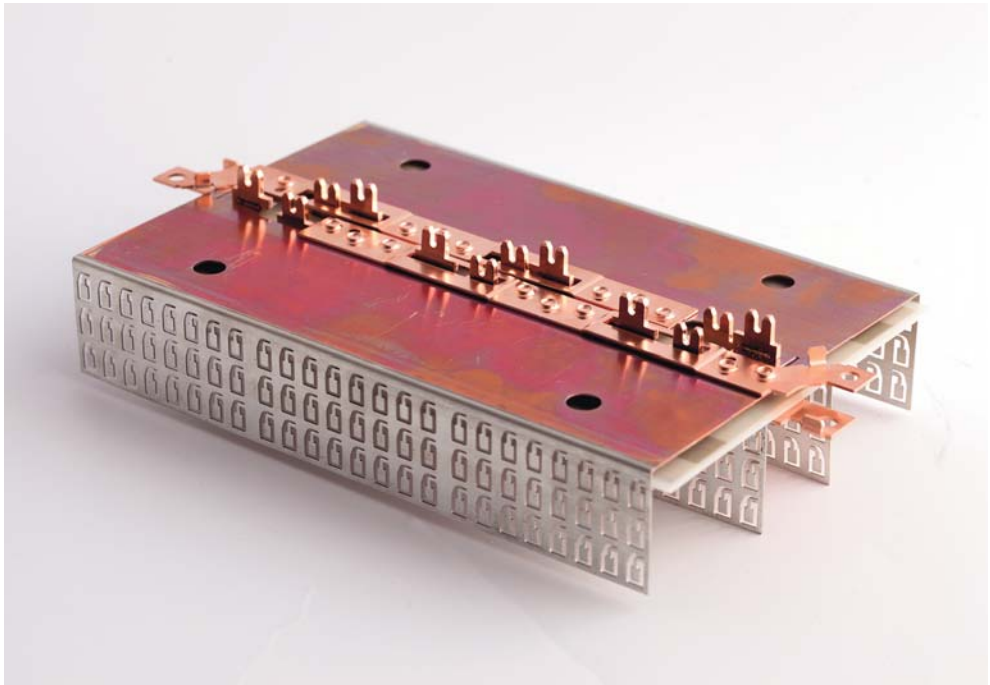
processing coated non-ferrous metals

Busbars made from high-purity copper.

In order to enhance its know-how in the field of joining and separating techniques for standard materials, SCHERDEL is involved in diverse research projects which, for example, investigate the long-term stability of mixed compound connections by means of various joining methods. Furthermore, SCHERDEL carries out fundamental research in the area of welded connections for non-ferrous metals in cooperation with renowned companies and research institutes. The SCHERDEL subsidiaries benefit massively from the resulting synergies, as they all have access to the in-house research laboratory, central process planning and central prototype production.

The rapidly changing demands placed on suppliers are characteristic of the present stage of electromobility. SCHERDEL offers the advantage of a comprehensive portfolio with proven production techniques that are constantly updated and adapted to the latest developments. In an ever-changing product market, an extensive range of production offerings is the key to efficient processes and favourably priced products. *(rb/cs)*

The stamped and shaped component serves as a shield against electric and magnetic fields.



The dual inverter powers the electric motor in a hybrid vehicle and also serves as a link capacitor. Recovered energy, for example when braking, is converted into electricity and returned to the battery.

Hybrid circuit technology

SCHERDEL circuitry rings and power terminals ens

Staff profile

We'd like to introduce staff members who will act as your contact if required.

Dipl.-Ing. (FH) Christoph Müller, Head of Electromobility Development

Tel.: +49 9231 603-6277
Email: christoph.mueller@scherdel.de

Christoph Müller has been employed in the field of electromobility development at the SCHERDEL*Group* since June 2012, and became head of development in this sector last September. After passing his university entrance exams at the Kepler High School in Weiden, Christoph studied mechanical engineering at the University of Applied Sciences in Amberg with specialist study of Plastic Processing Techniques. During this time he completed an internship in the motor engineering department of a car manufacturer. His diploma thesis focused on the visual inspection of plastic exterior components through deflectometry and was awarded top marks. The young graduate engineer gained experience in various positions (international trainee program "CAReer – The Talent Program", quality assurance, strategic planning MBC) before finally arriving at SCHERDEL.

Today, the 34-year-old Christoph lives back in Weiden with his fiancée, in whose clothes store he enjoys helping out in his free-time. The young couple also enjoy holidaying in the Tyrolean mountains.

(dk)

In recent years, the SCHERDEL*Group* has been focussing increasingly on new solutions for alternative drives. Intelligent hybrid systems ensure improved efficiency, whilst saving fuel and resources. When braking, for example, the generator principle is applied to transform kinetic energy into electrical energy which is then stored.

Besides the production of conventional components, which are still relevant for electromobility, SCHERDEL is also actively engaged in individual product developments to meet the special demands of hybrid and electric drives. New developments and components are applied in power electronics, electrical machines and high-voltage batteries. The SCHERDEL*Group* works in close cooperation with OEMs and other suppliers to satisfy specific customer requirements.

The SCHERDEL prototype engineers in Marktredwitz focus, in particular, on the pre-commercial development of circuitry rings and power terminals for electric drive technologies. The first SCHERDEL product developments to reach series production are already incorporated in the Audi Q5 and A6, Land Rover's "Range Rover Hybrid" and BMW's ActiveHybrid series.

According to individual manufacturer specifications, the electrical machines are located with the circuitry rings and power terminals between the combustion engine and the transmission – partially integrated in the transmission, partially outside the transmission. Alternatively, there are also solutions for each axle with, for example, the combustion engine driving the front axle and the electric motor the rear one. There is still no clear framework of standards in the hybrid and electric vehicle fields, thus forcing automotive suppliers to demonstrate extreme flexibility on the one hand, and the required knowledge and understanding of various processing techniques for a wide range of metals, plastics and composite materials on the other.

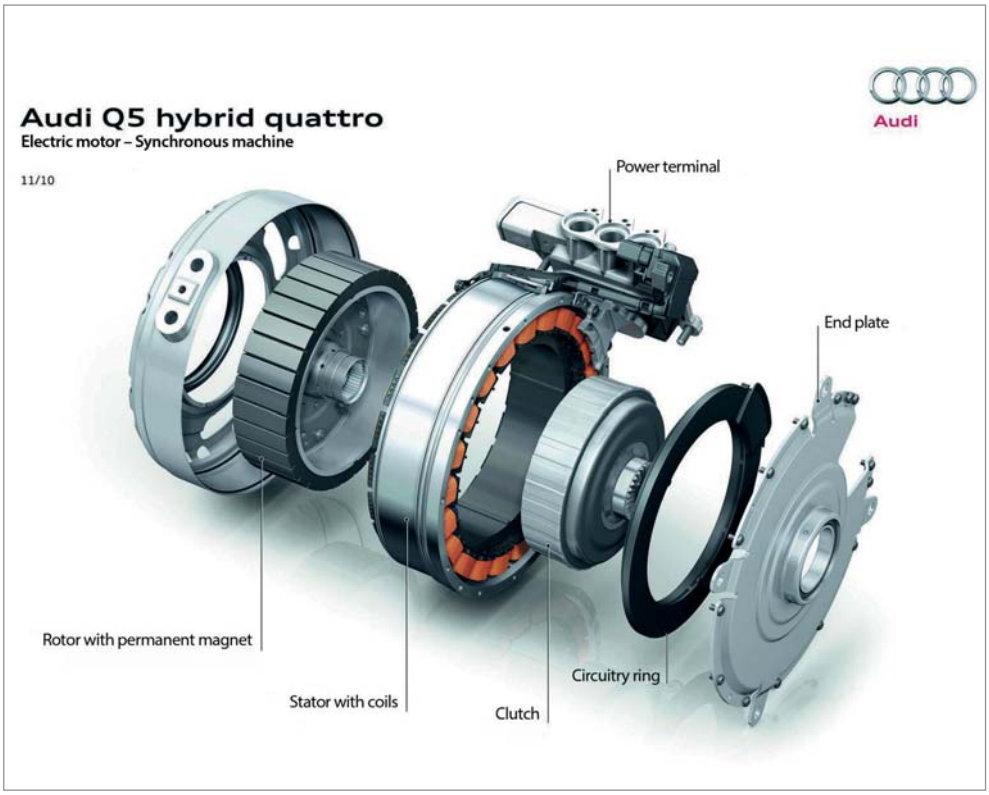
Exemplary for the comprehensive skills and knowledge of the SCHERDEL*Group* are the hybrid drive circuits which link the electric motor and the power electronics. The coils arranged in a ring shape are powered via the SCHERDEL assembly. Correct sealing of the electric components inside the transmission bell housing is a huge challenge.

The SCHERDEL engineers use copper materials for the busbars and

Circuitry rings are manufactured in the laser installation.

for series production vehicles

ure electric drive power



The SCHERDEL circuitry ring links the electric motor with the power electronics. The assembly powers the coils arranged in a ring shape.

busbar sleeves, as the components are welded using high-powered lasers. Other techniques such as ultrasonic welding and various pressure-joint procedures are also employed.

The components are sprayed with high-temperature resistant plastic or mounted in a moulded part made from this plastic. The plastic ensures the copper rings retain their shape at high operating temperatures or are isolated from one another. SCHERDEL offers its customers circuitry rings and power terminals as individual solutions or as a full assembly kit combination.

In order to expand production in the field of electromobility, the SCHERDEL*Group* has decided to invest in a brand new production installation at its plant in Waldershof. It houses forming machines, a high-performance laser welding system, an injection moulding system and the corresponding assembly and test operations.

SCHERDEL customers also benefit from the Group's logistics know-how. In addition to technical developments, all the clients receive effective production planning and scheduling according to specific automotive standards.

It is clear that the specialist for stamping, bending and coiling technologies has also established a secure position in new technology fields and is a valuable partner for its customers. Though the ecological aspect of designing green technology is particularly important, solutions that make good sense economically are also key to success for the SCHERDEL*Group*. Developments in the hybrid and electromobility sector will be able to compete in the market when end users recognise their economic value. *(mg/cs)*

Commentary

Marcus Bach,
Managing director
SCHERDEL GmbH

"As a parts supplier we have to respond quickly and effectively to the wishes of our customers, particularly in the electromobility sector. New materials and processing methods are being increasingly applied in production environments, and the lack of defined standards is a cause for concern. SCHERDEL has been engaged in intensive research for many decades and, due to its extensive knowledge of materials and their physical properties, is a valued partner of the automotive industry when producing new components. We are even able, for example at our facility in Bor, to realise complex components as manually produced prototypes efficiently within a short time scale. New products are always designed with batch and mass production in mind."

Overall victory with electric racing car

SCHERDEL backs the Running Snail racing team at the University of Applied Sciences Amberg / Weiden

The racing team of the University of Applied Sciences Amberg / Weiden (HAW) can look back on a hard-fought, yet excellent race season. The sports-mad students are backed by, among others, the R&D department of the SCHERDEL*Group*. The 'Running Snail' racing team has designed a new racing car each season since 2004. Last year the HAW not only figured in the competition for combustion engines, but also took to the grid with its first ever electric car. The Amberg students were the overall winners of the education motorsport competition 'Formula Student', held at the Autodrom Czech Ring, closely followed by their compatriots from the Technical University of Munich.

The University of Applied Sciences Amberg / Weiden took to the grid with its first ever electric vehicle.

The Running Snails found themselves in a hotly contested, neck-and-neck race with the 'TUfast e-Technology' racing team of the TU Munich from the very start. The overall winner of Formula Student is not simply the fastest car, but the team which provides a comprehensive concept that is judged on a number of criteria. The teams are awarded points for design, race performance, costing and business presentation skills. Down on the track the cars and drivers are tested in various dynamic disciplines, such as acceleration, endurance, handling, and a series of time-trial races.

The highly motivated Amberg students came first in the endurance test, with their successful business plan concept, and in the skid pad test, which determines the traction and manoeuvrability of the student race cars. The Amberg racing team was just pipped to the post by the TU Munich in the design, cost report and acceleration disciplines. Due to the very slim lead and to honour the epic struggle with the TU Munich, the Amberg-based team shared first place with their colleagues from Munich.

The racing team was also presented with the "Safety Innovation Special Award" by TÜV Süd Czech for the best prepared car. The team passed the technical and electrical inspections and the brake test with flying colours and in record time.

The HAW racing team is made up of 35 to 40 mechanical engineers and plastics, environmental and electrical technicians. The racing team was quick to praise SCHERDEL for the excellent cooperation throughout last season. *(cs)*

The jury judges the performance of both the car and the team.

The editorial team of SCHERDEL*news* looks forward to your contribution. Please send topic suggestions, wishes or feedback to:

scherdelaktuell@scherdel.de

or contact
Wolfgang Schelter on:
+49 9231 603-115

Just one prototype required

Improved SCHERDEL simulation model reduces development time

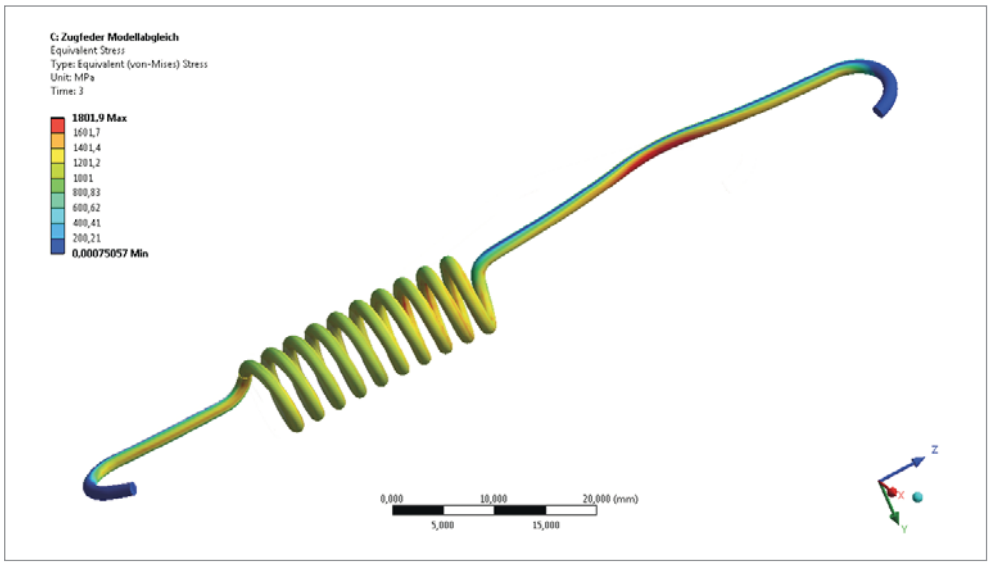
The SCHERDEL*Group* has developed an innovative R&D calculation model which helps to reduce the product development period significantly. Thanks to this complex simulation, costly, time-consuming prototype programmes are now a thing of the past. The simulation lies on the calculated curves with an error of less than five per cent, thus allowing the design of components that offer the ideal amount of power and installation space during the virtual development stage. Normally just one prototype is required for this simulation-based procedure – a key step to reducing costs.

This is demonstrated clearly by the development of a new windscreen wiper tension spring. In order to save additional space, automotive components need to be smaller and lighter. It is, nonetheless, crucial that they are capable of achieving and meeting the specified number of cycles and demands, while standing up to the expected daily wear and tear.

The simulation model developed by the SCHERDELGroup lies on the calculated curve with an error of less than five per cent.

The new requirements placed on the windscreen wiper tension springs have an impact on the hook geometry, as the hook shape of the tension spring becomes increasingly projecting, resulting in greater spring work. This is where conventional analytical calculation methods start to show their limitations. The SCHERDEL engineers developed a simulation that is based on a parametric tension spring model and which maps both the pretension in the spring body as well as the elastic-plastic material behaviour.

In addition to improving the prediction accuracy of characteristic curves and tension, the FE calculations can also be used to produce CAD models in the stressed positions and to present them to customers for assembly space analysis. *(gh/cs)*



The hook shape of the tension spring becomes increasingly projecting, resulting in greater spring work.

Contact

Dipl.-Phys. Georg Hannig,
Managing Director
SCHERDEL SIMENT GmbH

D-95615 Marktredwitz
Tel.: +49 9231 603-512
Email:
georg.hannig@scherdel.de

SCHERDEL successful at CTI in China

The SCHERDEL*Group* was pleased to attend its second year as an exhibitor at the second international transmission symposium in Shanghai in 2013. This platform offered the metalworking specialist an opportunity to showcase its innovative products to a qualified and targeted audience. Members of staff from the SCHERDEL plant in Anqing – aided by their colleagues from the company headquarters in Germany – presented the latest innovations and opportunities in the area of powertrains and auxiliaries, e.g. spring packs, compression springs for dual mass flywheels, and clutch springs, to an audience of experts. The importance of automatic transmissions became quite apparent during the often in-depth project discussions, clearly demonstrating that SCHERDEL products have enormous potential for growth, particularly in the Asian markets.

The events developed by the Car Training Institute (CTI) form a platform to exchange experiences on a global level. The symposia are held at regular intervals in the USA, Europe and Asia, and are very popular in professional circles. The international exchange of ideas provides a source of inspiration for innovation in transmission technology; thus increasing the responsiveness of automotive suppliers to the wants and needs of their customers.

(*tr/cs*)

A long tradition of coopera

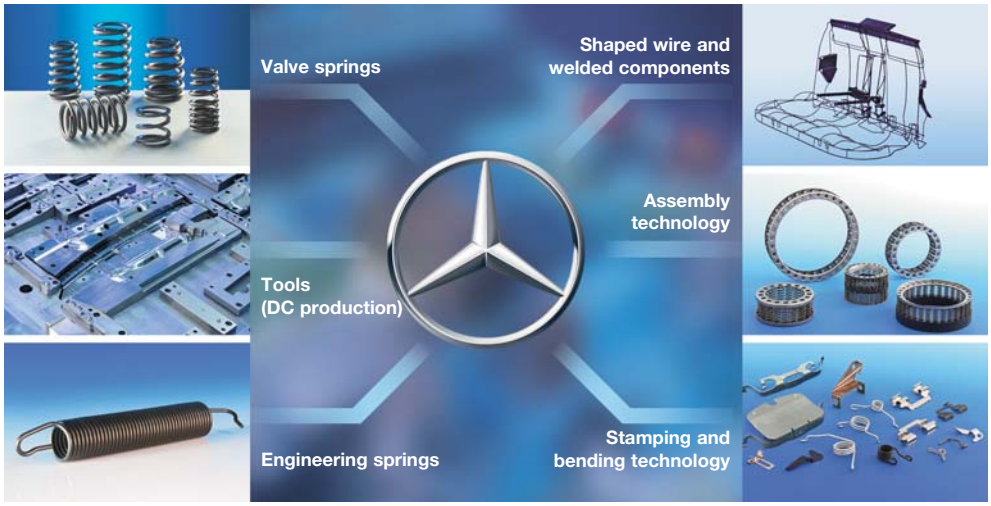
Daimler AG's high level of vertical integration mean

SCHERDEL and Daimler have a long tradition of cooperation dating back to the earliest beginnings of both companies. Around the same time, at the end of the 19th century, both SCHERDEL and Daimler delved into the world of engine technology – SCHERDEL with the development of a valve spring for the first ever diesel engine, Daimler with the foundation of a gas engine plant. After the merger between Daimler-Motoren-Gesellschaft (DMG) and Benz & Cie. and the birth of the Mercedes-Benz brand in 1926, their relationship continued to strengthen. Today, the SCHERDEL*Group* supplies Daimler with products from eleven locations in four countries, and the car manufacturer is one of the Group's top customers utilising the entire SCHERDEL portfolio.

SCHERDEL made its name with valve springs and Daimler AG places its faith in the metalworking specialist's ability and reliability to enhance its engine production. SCHERDEL valve springs ensure the correct input and output of combustion gases in all Mercedes engines for passenger cars and commercial vans, irrespective of whether they are petrol, diesel or gas powered. The trend towards more cost-effective and environmentally friendly engines demands the design of ever-smaller valve springs with the lowest possible levels of internal friction. As a supplier of development services for OEMs and system manufacturers, the SCHERDEL engineers carry out extensive research and development work in close cooperation with Daimler. New requirements are met quickly and efficiently, providing customers with innovative solutions and competitive advantages.

Daimler particularly values the comprehensive local service provided by SCHERDEL. The German car giant manufactures engines in Europe, America and China. SCHERDEL decided to follow suit and produces economical products locally and 'just-in-time'. The SCHERDEL logistics centre additionally offers customers ideal materials and supplier management, while its intelligent packaging solutions ensure effective procedures throughout the entire value chain.

As a result of its high level of vertical integration, Daimler AG boasts the largest variety of products in the SCHERDEL*Group*, and not just in the area of valve springs. Engineering springs are also used in brakes, transmissions, water pumps and car bodies. Mercedes' automatic boot lid opening feature is a prime example of innovative solutions based on the forming of wire, tube and strip material. The assembly was developed and optimised by SCHERDEL engineers for mass production – from material development to finalisation of the manufacturing processes – and can now be found in all Mercedes models.



tion

s it utilises the entire SCHERDEL portfolio

Seven development and design facilities at SCHERDEL ensure continuous progress. The 250 employees in the R&D departments perform numerous calculations (e.g. for springs), numerical simulations and complex measurement and test procedures for Daimler. SCHERDEL customers also receive innovative and creative ideas thanks to the extensive material, process and product development services provided by the departments and their prototype production. This becomes obvious on closer inspection of the spring support used at the gullwing doors of the Mercedes SLS-AMG. An upward-opening door must open fully, whatever the temperature. The system must therefore not be affected by temperature changes. With this specification in mind, the engineers came up with the ideal solution by combining a SCHERDEL compression spring with a gas spring.

The gullwing doors of the Mercedes-SLS-AMG open effortlessly and smoothly, irrespective of whether it is hot or cold.

Thanks to continuous investments in quality, people and machines, as well as a whole host of technical innovations, the SCHERDEL*Group* now supplies Daimler AG with an extensive range of products, underpinned by the highest levels of service in forming, tooling, machinery, systems, assembly, joining and surface finishing. The camshaft adjuster is an excellent example of how customers profit from the resulting synergy effects. The SCHERDEL subsidiary ZARIAN developed an assembly concept for adjuster production that saves axial space in the vehicle. The reduction in space utilisation is a core objective of today's automotive industry to ensure compact and lighter components. Daimler welcomed the suggestions for improvement proposed by the ZARIAN engineers.

The comprehensiveness of all SCHERDEL solutions, in particular, continues to impress Daimler. For instance, SCHERDEL also supplies the required tools for the spring packs for automatic and duplex clutch transmissions. The stamped components and compression springs, as well as the necessary assembly technology, are also provided by SCHERDEL's in-house production facilities. The area of shaped wire and welded components shows that the metalworking expert is able to handle mass production without compromising quality. A spare wheel retainer, shaped and welded from 12 mm thick iron wire at the SCHERDEL facility in Treuen, is installed in numerous Mercedes Sprinter models.

The positive business relationships between Daimler and the SCHERDEL-Group demonstrate, above all else, the scope of cooperation between the two companies. From new technology development and prototype production, through to the guiding of a new product to market and small and large-scale production – the SCHERDEL*Group* provides the best possible advice and support to its customers. *(dg/cs)*

Contact

Daniel Gampert,
Global Key Account Manager Daimler AG
SCHERDEL GmbH
D-95615 Marktredwitz

Tel.: +49 9231 603-546
Email:
daniel.gampert@scherdel.de

MECO – a premium tool supplier

New investments enhance flexibility for large components

Contact

Helmut Lang,
Plant Manager
MECO Maschinen-Elektro-Companie GmbH
Ludwig-Hüttner-Str. 1
D-95679 Waldershof

Tel.: +49 9231 976-20
Email:
helmut.lang@meco-werkzeugbau.de

Over the past few decades a real success story has been the development of the SCHERDEL subsidiary MECO GmbH, which specialises in the production of complex tools. Within the Group, the in-house tool making facility is an integral element of SCHERDEL's full service offering. After all, clients, particularly in the automotive industry, expect development partnerships to not only deliver innovative products and trend-setting solutions, but to also contribute greatly to joint success through sustainable and energy-efficient production processes, as well as cost-saving assembly concepts.

So it is hardly surprising that MECO GmbH is considered a top ranking toolmaker among car manufacturers. Co-operation with Daimler AG, for instance, is particularly important and has been continuously evolving over the past decades. The management at MECO is extremely proud of the fact that the company is currently one of Daimler's top ten toolmakers and that almost all Mercedes vehicles contain highly quality components manufactured using MECO tools. MECO GmbH has therefore secured its role as a Daimler premium supplier.

SCHERDEL has continued to enhance and extend the Group's tool making facilities. While in the 1980s the MECO portfolio still boasted small follow-on composite tools, gauges and fixtures up to one metre in size, technologies have now literally reached new dimensions with tool sizes of up to 5000 x 2500 mm no longer being uncommon. Tools for structural bodywork parts that can be applied to a wide range of assemblies are usually produced for car manufacturers. MECO specialists are currently involved with the latest Mercedes-Benz models. Cutting-edge machinery and presses ranging up to 1000 tons, which are used for tryout purposes or pilot and small runs, demonstrate the company's high-level of proficiency. High-tech measuring equipment – including an optical measuring system – guarantees that MECO meets the highest quality and performance standards. In-depth process organisation from CAD to CAM using the latest software also helps to achieve the simplest and most effective workflow. True to its motto 'Progress based on Tradition', the SCHERDEL*Group* prepared the path for the further expansion of MECO GmbH quite a while ago. One of the most recent investments is an additional high-tech 5-axis machining centre with a capacity of 5500 x 2500 mm to implement more flexible and effective working practices for large components. A new industrial hall with 600 m² of floor space and a 32 ton crane further enhance the options and opportunities during tool tryouts. In the future, increased focus will be placed on the flow of materials at MECO: a roofed container area at the company's headquarters in Waldershof is intended for the environmentally friendly disposal or recycling of swarf, chips and offcuts contaminated with coolant fluid. *(dk)*

Investments at MECO include a further 5-axis CNC machining centre.

Prototyping capabilities expanded in Marienberg

New process combines disk spring forming and hardening

The SCHERDEL*Group* has expanded the prototyping capabilities at its plant in Marienberg. Steady growth in the areas of quality assurance, testing and engineering in recent years meant that modernisation was essential to make maximum use of the available space. This involved the structuring of prototype capabilities for the production of stampings, springs and shaped wire components, as well as in the area of welded components and assembly parts.

Non-recurrent investments supported the acquisition of new machines and systems. Prototype production generally utilises the technologies and equipment provided by the in-house production divisions. Marienberg therefore follows the philosophy of producing prototypes to demonstrate the feasibility of serial production and to offer clients close-to-production prototypes. A prototype and pilot run welding cell allows SCHERDEL Marienberg to provide its customers with initial samples of robot welded assemblies that can be produced “just-in-time”. Customers are increasingly using this option to enhance reproducibility for validations. Existing standard equipment is also generally used to produce prototypes in the engineering spring sector.

Prototype experts also check the feasibility of mass production during the development stage.

A real highlight is the prototypical single item tempering system for disk springs which entered operation in October 2013. The new process combines forming and hardening, commonly referred to as press hardening. It involves an induction heating process in an inert gas environment with subsequent forming and hardening in cooled tools. SCHERDEL Marienberg therefore offers its customers development-experimental runs, prototypes and small production runs for special disk springs. The manufactured parts meet tolerance requirements which are impossible to satisfy with normal thickness-to-diameter ratios or with uncontrolled hardening and tempering processes.

SCHERDEL employees in Marienberg demonstrate their skills and knowledge when producing prototypes.

Extensive investments in production technology and part testing and quality assurance systems are planned for this year. By continuously optimising process conditions, SCHERDEL Marienberg allows customers to profit from more efficient product development. *(js/cs)*

Staff profile

We’d like to introduce staff members who will act as your contact if required.

Dirk Schmiedel,
Head of Prototype Production
Tel.: +49 3735 710-840
Email:
dirk.schmiedel@fwm.scherdel.de

Dirk Schmiedel has been in charge of prototype production at the SCHERDEL plant in Marienberg since 2005. After leaving school and serving his period of national service in the German army, he successfully completed an industrial mechanic apprenticeship with specialist focus on machines and systems. While subsequently working as an industrial mechanic, Dirk participated in further vocational training, qualifying as a metalwork supervisor and an apprentice trainer. The 37-year-old has been actively involved in improving performance to increase product quality in Marienberg. Furthermore, he campaigned for the development of a reliable supplier management service and the modernisation of the prototype capabilities.

Dirk Schmiedel is married with a son. In his free-time, he is a passionate mountain bike rider and regularly participates in race events.

Outstanding development of young talents

SCHERDEL Marienberg has modernised its training centre

Careers at SCHERDEL Marienberg

Our vocational education and training programmes:

- Industrial mechanic
- Tool technician
- Mechatronic engineer
- Commercial clerk

- Dual study course

- Trial internship

Contact

SCHERDEL Marienberg GmbH
Dipl.-Ing. Klaus Arndt,
Human Resources Manager

Am Federnwerk 1
D-09496 Marienberg

Tel.: +49 3735 710-850
Email:
klaus.arndt@fwm.scherdel.de

Well trained employees are the key to success. Driven by the need to meet increasing qualification

demands on the one hand and to address the growing shortage of skilled workers on the other, the SCHERDEL-*Group* has modernised its training centre in Marienberg. The vocational education and training courses show that the metalworking specialist takes its corporate responsibilities seriously while offering young people the chance to enhance their career perspectives.

The most compelling reasons for modernising the rooms were to provide a safe and pleasant work environment, to incorporate training materials and equipment, and to ensure an effective and clear layout of the individual training areas. This makeover involved coming up with a colour scheme that creates a balanced and harmonious effect throughout the rooms.

Training in all the metalwork apprenticeships has been enhanced greatly through the use of new computers and

control technology components. The direct, hands-on approach is an ideal way of ensuring that the apprentices learn to construct and work with circuits while having a full understanding of systematic troubleshooting.

A key element of the vocational training courses is the execution of activities for the optimisation of production processes. The central idea of integrating the budding mechanics into the existing team is promoted from the outset. A separate workshop area also provides the apprentices with the ideal conditions to prepare for examinations.

SCHERDEL Marienberg currently boasts 60 apprentices and cooperative university students. The young men and women can choose from a diverse range of professions, including industrial mechanic, tool technician, mechatronic engineer, technical product designer and commercial clerk. At the end of their dual system courses at a cooperative university, the students graduate with a Bachelor of Arts (BA) or a Bachelor of Engineering (BEng).

The new training centre allows SCHERDEL Marienberg to offer interested youngsters a high-quality, practical programme of vocational education that develops skills and knowledge for the future and provides a welcome boost to the local job market. *(ms/cs)*

Responsible in terms of the Press Law: SCHERDEL GmbH, PO Box 440, 95604 Marktredwitz, Germany, Phone: +49 9231 6003-0, Fax: +49 9231 6003-462