



ELASTOMERIC COMPONENTS FOR **SCR SYSTEMS**

NO MATTER WHAT
THE FUTURE HOLDS





Custom-designed product solutions

Datwyler is a leading global partner for the automotive industry and the preferred choice for reliable high-quality products while having excellent engineering experience. The components produced provide maximum reliability and long service life in advanced automotive applications. The automotive division offers customers the expertise for materials and processes by supporting them already in the development stage of new products.

Datwyler is the preferred supplier for elastomer components for the SCR (selective catalytic reduction) technology. Datwyler enables the automotive industry to meet increasingly tighter environmental regulations. The company's comprehensive experience in supplying customized precision rubber components is proven by numerous successful projects for both trucks and passenger cars. Datwyler has a high level of expertise and offers capabilities such as compounding, tool making, prototyping, FEM analysis, and process development. Thanks to modern mixing facilities in Asia and Europe, Datwyler always meets the highest quality standards and product requirements.

Datwyler is already well positioned in this market due to a long supply history that began in 2008 and close engineering relationships with SCR system market leaders. Datwyler accomplishes the very demanding and sophisticated requirements (tolerances, media resistance and durability) of the SCR technology components.

Growing demand for SCR systems

Due to rapidly increasing traffic and regulations, experts predict a worldwide growing demand for exhaust gas treatment products, such as SCR systems, especially in emerging markets.

Stricter nitrogen oxide (NOx) limits according to the Euro 6 standard, even stricter super ultra-low emission vehicle (SULEV) limits for California, as well as the upcoming real driving emissions (RDE) tests are further posing a major challenge to car manufacturers. RDE tests examine the exhaust gas emissions of vehicles under realistic driving conditions, meaning that low emission values under laboratory conditions will no longer be sufficient. In October 2015, the European Union decided to introduce RDE tests on a mandatory basis. They will come into force in September 2017 for new vehicle types and in September 2019 for all new vehicles.

These stricter regulations require more than optimised diesel engines, making additional exhaust gas treatment absolutely necessary. Key technologies for the reduction of nitrogen oxides are selective catalytic reduction (SCR) systems.

SCR technology is considered the best way to reduce NOx emissions of diesel engines. A major part of diesel vehicles complying with the Euro 6 exhaust standard are already fitted with a SCR system.



Specialised EPDM and HNBR materials for AdBlue® applications – Datwyler has the solution

SCR systems use water-based urea solutions (AdBlue®) as an ammonia source to neutralise the nitrogen oxides in exhaust emissions of diesel engines. In SCR systems, ammonia (NH₃) reacts selectively with nitrogen oxides to result in nitrogen and water. To guarantee the safe transport of these chemicals from their storage tank to the exhaust system, the latest technology requires parts that are based on specially designed rubber materials. These materials can be attacked by AdBlue®, which contains urea. Choosing suitable elastomer materials that withstand the aggressive urea solution poses a considerable technical challenge for the rubber. This applies equally to the rubber-to-metal bonding that is often required for AdBlue® applications. With its superior technology and top-quality rubber materials based on EPDM and HNBR, Datwyler meets this challenge.

Datwyler product portfolio for AdBlue® application materials

EPDM: 70ShA (plus internal lubrication properties)
HNBR: 60 ShA, 70ShA, 80ShA, also in fiber-reinforced variants, low temperature variants and with internal lubrication properties.

SCR systems use complex components with rubber to metal/plastic parts, tight tolerances, and sophisticated geometries. Elastomer material is available in different hardnesses, covering specific requirements (e.g. temperature flexibility, internal lubricant or fiber reinforcements).

Datwyler offers EPDM and HNBR compounds that are specially designed for AdBlue® applications and have been successfully tested in extreme environments at peak temperatures of 120°C

respective 150°C, which clearly demonstrates the robustness of Datwyler's compounds.

Advanced low temperature properties of EPDM (-53°C) and HNBR (down to -35°C) allow performance reliability without loss of needed properties.

The demand and complexity of SCR technology will substantially increase due to the following:

- The spray rate of AdBlue® will increase, which will have an impact on durability, the performance of pumps and dosing modules.
- Due to continuous and accurate concentration measurement, wrong fluid detecting will be added to the system features.
- Production volumes of SCR systems will increase due to expected stronger legislation.
- Due to increasing requirements and additional system features, the number of elastomer components within the SCR system is expected to increase in the next years.

New production facility in Switzerland

Focusing on highly automated processes, we aim to be a first-class supplier for products with high requirements on technical aspects, quality and cleanliness, starting from in-house prototyping to serial production.

To meet the challenging needs of our automotive customers, a new standard is being developed with regard to cleanliness and contamination of production parts. The focus will be on the development of a new and optimized production layout and environment concept to meet the increasing quality and cleanliness requirements of our customers.

For more information and an update regarding project status, please contact us.



Key products

Datwyler offers customised precision molded rubber components (rubber and rubber bonded to metal/plastic) which meet strict requirements regarding tolerances, media resistance and product life. Components for SCR systems include parts of pumps, dosing modules, pipes, and the AdBlue® tank system.

Typical parts are flutter valves, membranes, anchor groups, O-rings, sealings, and equalizing elements. Materials are mostly HNBR, but also EPDM and VMQ.

Why Datwyler is the right partner:

- Leading competence in material development with own mixing plants and engineering with in-house mold shop.
- In-depth understanding of the technologies of the systems produced by our customers.
- Long supply history to market leaders.
- Worldwide presence with own plants in the three main economic regions Asia, Nafta and Europe.
- Engineering support from the very early project and development stage.

Please contact us for further information

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