

# EMISSION REDUCTION SYSTEMS

## POLYMER COMPONENTS FOR SCR APPLICATIONS



## CUSTOM-DESIGNED PRODUCT SOLUTIONS

Datwyler is a leading global partner for the mobility industry and the preferred choice for high-performance components, while having excellent engineering capabilities. The components produced provide maximum reliability and long service life in advanced mobility applications.

Being the preferred supplier of elastomer components for the SCR (Selective Catalytic Reduction) technology, the company enables the automotive industry to meet increasingly tighter environmental regulations. Datwyler's comprehensive experience in supplying customized precision elastomer components is proven by numerous successful projects for both commercial vehicles and passenger cars. Datwyler has an excellent level of expertise in engineering, material, simulation, tool making, prototyping, as well as process development, and owns modern mixing facilities in Europe and Asia.

Datwyler is a leading supplier of high-performance components for emission reduction systems, due to a long supply history that began in 2008 and a close engineering relationship with SCR system market leaders.

**Datwyler supports its customers  
to achieve ambitious solutions**





## GROWING DEMAND FOR SCR SYSTEMS

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

Nitrogen oxide (NO<sub>x</sub>) limits given by the WLTP (Worldwide Light Vehicles Test Procedure) and even stricter SULEV (Super Ultra-Low Emission Vehicle) limits for California are continuously posing a major challenge to vehicle manufacturers. The already introduced RDE (Real Driving Emission) 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. 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 most efficient and reliable method to reduce more than 90 % of NO<sub>x</sub> emissions of diesel engines and to comply with Euro 6d standards and above.

AdBlue



## SPECIALIZED EPDM AND HNBR MATERIALS FOR ADBLUE® APPLICATIONS

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 (NH<sub>3</sub>) reacts selectively with nitrogen oxides, resulting in harmless nitrogen and water. To guarantee the safe transport of these chemicals from their storage tank to the exhaust system, the SCR technology requires parts that are based on specifically designed elastomer materials. These materials are exposed to and attacked by AdBlue®. Choosing suitable elastomer materials that withstand the aggressive urea solution poses a considerable technical challenge for the elastomer. This applies equally to the elastomer-to-metal bonding that is often required for AdBlue® applications. With its superior technology and top-quality elastomer materials based on EPDM and HNBR, Datwyler meets this challenge.



## DATWYLER PRODUCT PORTFOLIO FOR ADBLUE® APPLICATION MATERIALS

SCR systems use complex components with elastomer 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, fiber reinforcements or diesel resistance).

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 and 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.

- EPDM: 50 ShA, 70 ShA  
(plus internal lubrication properties)
- HNBR: 60 ShA, 70 ShA, 80 ShA, also in fiber reinforced variants, low temperature variants, and with internal lubrication 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.
- Fluid measurement will be added to the system features, to ensure correct media and its concentration.
- Production volumes of SCR systems will increase due to stronger legislation.
- Due to increasing requirements and additional system features, the number of elastomer components within the SCR system will further increase in the coming years.



## BEST-IN-CLASS PROCESSING

The Datwyler Production System (DPS) ensures Datwyler produces best-in-class sealing solutions that meet the highest industry standards. Dedicated DPS professionals drive continuous improvement within Datwyler's production processes, allowing Datwyler to guarantee the highest quality, short lead times, and to deliver with maximum efficiency. From efficient factory designs and layouts to reliable and future-proof technologies, all processes are monitored and scrutinized to the highest possible degree.



## LEAN & CLEAN PRODUCTION FACILITY IN SWITZERLAND

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

To meet the challenging needs of its mobility customers, Datwyler developed a new standard in regard to cleanliness and contamination of production processes and parts.

**Datwyler assists its customers to meet the highest industry standards**



## KEY PRODUCTS

Components for SCR systems include parts of pumps, dosing modules, and the AdBlue® tank system. Typical parts are flutter valves, membranes, anchor groups, O-rings, pressure dampers, and equalizing elements. Materials are mostly HNBR, but also EPDM and VMQ.

## DATWYLER HELPS ITS CUSTOMERS TO SHAPE NEW MOBILITY – NO MATTER WHAT THE FUTURE HOLDS

As a leading global supplier of high-performance polymer components, Datwyler helps its partners to swiftly address emerging opportunities to shape the future of mobility with:

### INNOVATION & DESIGN

- Advanced materials
- Customized design and simulation services
- Advanced technologies
- Global network of technology leaders

### MANUFACTURING EXCELLENCE

- Best-in-class processing
- Global footprint and services  
(Europe, Asia, South America, and the NAFTA region)
- Broad range of technologies

### HIGH-PERFORMANCE COMPONENTS

- Emission reduction systems
- Electrification
- Advanced driver assistance systems
- Brake systems
- Powertrain
- Fuel systems
- Comfort systems

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