No small thing

Daimler AG thinks big when it comes to coating axle parts like tubes, housings and wheel hubs. A completely new coating facility was built at the commercial vehicle plant in Kassel, Germany.

Why coat axles elaborately? "Axles need the same care as the body," says Hermann Fellhauer, engineer at the Daimler AG Center of Competence Coating Technology. "It's about all-round corrosion protection, even underneath the vehicle." This involves a dual-layer rust inhibitor basecoat and a protective top coating. The basecoat has to be really heavy-duty, as even the tiniest cranny left exposed can allow rust to infiltrate. Spray painting cannot achieve the desired quality – only cathodic e-coating ensures that parts are 100% coated. That's why Daimler built an additional hall to house a new cathodic e-coating facility.

It should only take about a year for the facility to start operating, with all parties involved cooperating closely within a tight project framework since December 2007. Equipment maker Dürr AG, chemicals supplier Chemetall GmbH, and BASF Coatings are on board the project in coordination with Daimler Trucks Central Planning and the Mercedes-Benz Kassel plant.

Valuable experience

"It was important for us to get our partners involved in the design stage," says Fellhauer. "A lot depends on the materials subsequently used; these determine process structures and thus are inherently linked with system design." In addition, these project partners had already worked with Daimler three times before, having only recently set up a similar facility at the Hamburg plant. "We derived a lot of valuable experience from that project," adds Holger Krug, Team Leader and Project Manager Coating in Kassel.

The core element of the coating line in Kassel is comprised of 15 basins, twelve of which are for cleaning and chemical

Capacity written large: The Mercedes-Benz coating facility in Kassel is designed for large-scale production. The first wheel hubs have already made it through testing.

pretreatment of axle components. Then comes the three-stage base coating in the cathodic e-coating basins, in which an electrical current causes the positively charged coating pigments to be attracted and deposited onto the parts attached to the cathode. BASF Coatings specially optimized the coating system to be deployed. While conforming to the Daimler plant's stringent environmental specifications, the system accommodates wider materials parameters, allowing coating layer thicknesses of up to 55 micrometers, necessary for big truck axles. The standard parameters in vehicle manufacturing are 22 to 40 micrometers.

Synergistic collaboration

In August 2008, the system started test operation. If any changes were required to process parameters, Chemetall, Dürr, and BASF Coatings experts coordinated what needed to be done. "In the implementation phase we cooperated even more closely together," says Krug. The advantage for Daimler was that whenever something came up, there was a group response and a group solution. The partners had even cooperated on the project bid to ensure meeting Daimler's technical and pricing specifications. As Winfried Baum from the general contractor Dürr AG, confirms, "Each party benefited from the experience of the others. This served to adjust potential problem areas in advance." This type of assurance is crucial for a system planned to process more than one million axle parts annually. ■

➜ www.werk-kassel.daimler.com

Working as a team for a year now (from left): Andrea Labandowski (Chemetall GmbH), José-Manuel Arroyo-Pardo (Mercedes-Benz Kassel, Workplace Safety), Holger Krug (MB Kassel, Coatings Team Leader and Project Manager), Winfried Baum (Dürr AG, GU Project Manager), Volker Lindenberg (MB Kassel, Co-Project Manager VBH/KTL), Steffan Hessels and Thomas Kreienbaum (BASF Coatings, Automotive OEM Coatings Solutions), Peter Diehl (Dürr AG), Rolf Naujok (MB Kassel, Building Technology/Infrastructure), Hermann Fellhauer (Daimler AG, Center of Competence Coating Technology), Jan Schroeder (MB Kassel, Building Technology/Infrastructure).