



**Henkel supplies the Mlada Boleslav automobile plant with new-generation lubricoolants and cleaners**

## **The universal lubricoolant Multan 71-10 SK as used in Skoda's engine production**

**With up to 27,000 liters of emulsion liquid flowing each minute through the pipes supplying the engine production shop with lubricoolant at the Skoda's Mlada Boleslav plant, the flow is akin to a raging torrent. The high-tech concentrate Multan 71-10 SK from Henkel's laboratories plays a special role in this process. It makes a significant contribution to ensuring that the fully automatic machining operations performed on the engine blocks continue to function reliably.**

In the Bohemian industrial city Mlada Boleslav, about 60 kilometers north-east of Prague, can be found the parent company of the Czech automobile manufacturer Skoda, part of the Volkswagen Group since 1991. An enormous complex with numerous new buildings provides some indication of the phenomenal rise and rise undergone by the company. Each year, new sales records are reported, and in 2006 more than 550,000 vehicles were sold. Skoda has never been a company to sit back and rest on its 100 years-plus of tradition in automobile construction – graphically documented in the company's museum in Mlada Boleslav – and today counts among the most successful of Europe's automobile brands.

### **Priority on cleanliness**

The fact that Skoda has set its sights on the future becomes immediately clear on visiting the factory complex. Production bays lit as bright as day and boasting the very latest in production technology leave an unmistakable and lasting impression. This also applies to the engine and gearbox production facility built in 2001. The automatic production lines for metal machining are installed over an area that would cover several football fields, and adjacent to this site are several zones for assembly and intermediate storage. Particularly conspicuous is the degree of cleanliness that reigns throughout. "Since 1997, we have been developing our own production system in which the highest priority is attached to keeping things clean. This is particularly important for the quality of the products," explains Milan Stanek, head of power train production in Mlada Boleslav. Each day, 1300 3-cylinder engines are manufactured here. All the machining operations performed on the aluminum components that go to make up the engine blocks are performed in enclosed machining centers. These are supplied with lubricoolant emulsion from a central delivery system, the tank of which is located in a separate wing of the building. With a maximum volume of 200 cubic meters, this is one of the largest systems for water-miscible lubricoolants in the Czech Republic; it is usually operated with 180 cubic meters to leave some capacity in reserve.

### **High reliability imperative**

Stanek explains where the priorities lie in the selection of machining fluids: "Our manufacturing processes must be highly reliable simply because the production activities in other plants depend upon them. The engines manufactured here are destined not only for Skoda models but also other models of the Group marques. We cannot afford disruptions, downtimes or quality problems, so we place very high demands on the technical properties and the biostability of the lubricoolant." Following commissioning, the first cutting fluid employed tended toward high levels of foam formation. As a result, a selection process was introduced in order to test various alternative lubricoolants so that a better solution might be found. Following this comparison procedure, the decision went in favor of a universally

applicable water-miscible lubricoolant from Henkel which is suitable for light to medium machining of aluminum, steel, cast iron and non-ferrous metals. It is marketed under the product designation Multan 71-10 SK and is based on a highly modern formulation concept that provides Henkel with a unique selling proposition in the marketplace. “The concentrate is semi-synthetic, a hybrid of mineral oil and plant-based oil blended on the basis of a patented combination of emulsifiers,” explains Henkel chemist Florian Bauer, assigned to provide essential local support to Skoda as a key account customer. “Compared to conventional products, the concentration we require for the formulation is very low at just 8 percent. This results in highly favorable consumption values which can be extremely important in economic terms for the customer in view of the large production volumes involved.” This is also confirmed by Milan Stanek: “Ultimately, it is the consumption volumes over the entire production campaign period that are the crucial factor. And on this point we are highly satisfied with the Henkel products that we use.” The high bacterial stability of the emulsion is a further contributory factor. Stanek again: “We use biologically untreated river water which is only mechanically filtered. At the beginning, the contaminants in the water led to problems in the lubricoolant system. Henkel was able to get this problem under control very effectively. The fluid was especially modified to the conditions prevailing in our factory, resulting in what is today a highly stable system.” Among the positive properties of Multan 71-10 SK are its cleaning effect and its good run-off properties. As a result, the machines and tools show a significantly reduced tendency to stick and become contaminated, while the workpieces leave the machining center in a very clean condition. Moreover, the entrainment volumes are also small, so that only relatively low replenishment quantities are necessary – an important reason for the favorable consumption values. Multan 71-10 SK has been in use in Mlada Boleslav for over three years now, and remaining unchallenged in terms of its reliability and economy.

### **The right cleaner**

In accordance with the total cleanliness philosophy of Skoda, the finish-machined engine cases are cleaned and dried immediately following the metal cutting

process. “Residual chips and other contaminants inside an engine can be fatal. Consequently, careful cleaning after the machining operation is an indispensable part of our quality assurance process,” emphasizes Stanek. Here again, it is a Henkel product that is used, very much in keeping with the company’s commitment to serve as a system supplier to its customers. The product in question is P3-neutracare 3700, a new type of neutral aqueous cleaner. This has been especially developed for the cleaning and degreasing processes that follow machining operations and has been coordinated to complement the Multan lubricoolant. The problem with conventional neutral cleaner types lies in the high cost of separating the oils, emulsions and dirt particles transferred to the cleaning baths. Moreover, the level of loss of the wash-active substances, the surfactants, is very high, giving rise to the need for ever increasing quantities of replenishment additives. With the new neutral cleaner technology from Henkel, the surfactants are incorporated within an innovative combination of raw materials, as a result of which the level of loss is significantly reduced. At Skoda, this technology has resulted in a doubling of the cleaning bath lifetimes.

### **On-the-spot expert support**

For Milan Stanek, it is not only the quality of the products but also the quality of the customer support that can be key to effective cooperation with a vendor: “Owing to our obligations with respect to our customers and the danger of producing scrap if there are problems with the emulsion, the local availability of expert technical support is indispensable. Here, Henkel is able to offer us a level of service that far exceeds the usual standard.” With its wide product spectrum and profound knowledge of modern production processes, particularly with respect to surface treatment, Henkel is a popular partner to the automobile and metals industry. In addition, industrial customers profit from the worldwide presence of the company and the fast response capability that this consistently guarantees. For Henkel, the high level of product quality and customer satisfaction, as confirmed by Skoda, has been reflected in the consistent growth of its lubricoolants business, very much against the market trend. While overall

demand for this type of fluid has been regressive, Henkel has been able to increase its sales in Europe by over 23 percent.

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## Photos



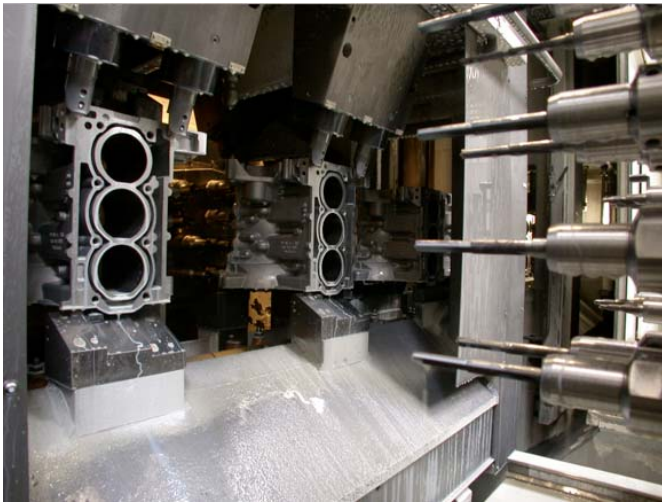
*The Skoda's Mlada Boleslav plant contains the largest lubricoolant system in the Czech Republic. The facility supplies the engine production shop.*



*An impressive system of pipework and conduits guides the lubricoolant to the machining centers in the production bays.*



*The machining line for the engine cases extends over a distance in excess of 200 meters.*



*Dozens of metal cutting operations are performed in each of the individual machining centers along the transfer line.*



*The emulsion is highly stable, as confirmed by the analyses performed in regular sampling operations.*



*Close cooperation on site: Henkel chemist Florian Bauer (l) and head of Skoda power train production, Milan Stanek.*