

Chlorine-free tube production

The German Boysen Group, one of the world's leading suppliers in exhaust technology, relies on a strategic alliance with German lubricant expert Georg Oest Mineralölwerk GmbH & Co KG. For more than two decades, the Boysen subsidiary BAK Abgaskomponenten GmbH has successfully utilised several OEST products for different tasks. The focus, however, lies on specifically additivated, chlorine-free oils for pressing and punching.

The requirements placed on lubricants used in tube production are rising continuously. The trend is towards long-term quality and reliability rather than short-term quantity: "The demands on precise and reliable lubricant distribution within forming processes are increasing continuously. Exhaust technology's future lies in materials of constantly decreasing sheet thickness as well as more cost-efficient, more precise, tailor-made blanks. At the same time, international markets are asking for components with even more elaborate contours and complex geometries," Volker Talmon, production manager of BAK Boysen's press shop, explains. "Preliminary to the selection of lubricants, their implications on each following production step have to be considered thoroughly. This also includes the question when and how the oil has to be removed from the components."

Against this background, it is evident that an efficient metering of OEST forming lubricants requires a variety of application techniques – depending on the considered process. Whereas bending and expanding of tube ends require rather large amounts of lubricant, the method of choice for pressing and punching of blanks is mainly sectoral lubrication with precisely calculated spray quantities. Best possible degreasing subsequent to the forming process is supported by ecological, chlorine-free forming lubricants of the OEST Platinal and Robinol product lines. These high-

performance lubricants were developed in OEST's research laboratory for use with specialised high-tensile steels, eg stainless steels and titanium alloys.

Volker Talmon continues: "For more than 25 years at several Boysen production facilities we rely on OEST's lubricant expertise. Besides the deep drawing oils, we also use OEST lubricants for hydroforming processes and hydraulic fluids for our production machines." According to BAK Boysen's production manager, OEST is a full service provider that excels especially in its competence to control the versatile interactions between the various manufacturing areas and production stages and adapting its product formulations accordingly. This special know-how is highly valued by Boysen.

As a result of several years of continuous product development, meanwhile two special formulations of non-water miscible lubricants are applied in particular at BAK Boysen. "Focusing on these two key products, we achieve excellent process reliability. Simultaneously your production remains flexible and adjustable as we are still able to cover a wide range of materials and components, even with demanding specifications," Volker Talmon explains, adding: "To achieve a constantly high process quality, we also instruct our contract suppliers to exclusively use these OEST forming lubricants."

Today, all lubricants used by BAK Boysen are free of chlorine additives. Two years ago, Boysen decided on a complete substitution of their lubricants for chlorine-free OEST products. Harmful impacts for humans and adverse environmental effects are thereby eliminated. By intense research in its in-house laboratory, OEST succeeded in the development of special formulations for enhanced process safety and reproducibility – without using chlorinated paraffins at all. Dr Martin Wünsch, OEST's business development manager for forming lubricants, concluded: "A large number of applications



Volker Talmon (left), production manager of the BAK Boysen press shop, and OEST's business development manager Dr Martin Wünsch

have already incorporated a complete substitute chlorinated product – consistently maintaining high process quality."

Facing the diversity of forming processes at BAK Boysen, OEST's experts focus on application guidance in specific tasks. By doing this, the entire process peripherals are considered to achieve optimal solutions, especially with regard to downstream processes. Giving an example, Volker Talmon mentions the workflow punching and laser welding within tube production: "To secure a stable lubrication film on the punching tool, the oil is continuously applied. Furthermore, for several punching processes we are using a vanishing oil to minimise residues on the surfaces and to avoid interference with subsequent operations, eg laser welding of these components."

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