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# Automated Lubrication: Retrofit Pilot Project in a German Quarry

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**Fig. 1:** Gravel production from White Jura on the Swabian Alb near Stuttgart  
Source of the figures: SVA Moeck/Bielomatik or Nikolaus Fecht



**Fig. 2:** Loading and transportation in the ballast works

**Fig. 3:** BHS mixing plant



The Stone Age has a Future – with this slogan, the quarry company SVA on the Swabian Alb is promoting an industry that is currently booming – not simply because there are so many ongoing road construction projects in Germany. For the project to run smoothly, it relies on its production equipment always being operational, and in turn on its automated lubrication. Bielomatik's retrofit pilot project demonstrates how all this works.

**Geotechnics • Mining • Quarry • Construction material • Stone and earth • Equipment • Maintenance**

## Introduction

It concerns gravel, that is to say about aggregates, mixtures and additives for construction projects of all kinds. Located on the Swabian Jura, the Schottervertrieb Vorderer Alb GmbH & Co. KG (SVA) produces several thousand tonnes per day from White Jura rock for customers from the Greater Stuttgart area (Figs. 1+2). But the end products – finely ground – are also found in toothpaste or animal fodder (calcium). In the complex manufacturing processes, the lubrication systems in the two ballast works play an important role; they were installed by the company Bielomatik Leuze GmbH + Co. KG (Bielomatik) from nearby Neuffen. The Schotterwerk Bauer Söhne GmbH + Co. KG (Bauer), Erkenbrechtsweiler received a new plant for the BHS mixing facility, the quarry of the Alfred Moeck KG, Lenningen received a lubrication system for its BHS mixing plant (Fig. 3) and binder + co received screening plants. Toni Pranghofer, operations manager at Alfred Moeck KG in Lenningen explains: "What spoke for Bielomatik was both the proximity to the location and the good experience Bauer had with a retrofitted Bielomatik lubrication system several years ago. In addition, we want to have the same technology in both plants. So it makes it easier for us to store spare parts, to ensure everything's more uniform."

## Breaking new Ground in the Stone and Earth Industry

Bielomatik is breaking new ground with this contract because so far, the company has not fulfilled any retrofit projects in the stone and earth industry sector. "Similar to the printing industry, where we are well established, a particularly harsh, dusty environment

exists here," explains Frank Müller, Service Manager of the Lubrication Systems division at Bielomatik. "However, the amount of dust is much higher here. The main sticking point is the high temperature fluctuations in the unheated buildings, which is why heated pipes are used." Pranghofer continues: "Therefore, we do not need special lubricants for wintry conditions. As a result, we can as far as possible use the same grease in all systems." In progressive lubrication systems from Bielomatik, SVA uses mainly smooth long-life lubricating greases.

## Planning and Execution of Retrofitting

The older manual lubrication systems from other manufacturers were converted to the automatic Bielomatik systems without having to stop production during operation. "Only a few measures took place in the evening after operations ended or at the weekend," says the manager. In a total of 380 working hours, Bielomatik service technician Oliver Oswald equipped the systems with the most diverse products from the Bielomatik central lubrication portfolio, while the operations manager coordinated cooperation with his staff; among other things, Oswald installed control systems, pneumatic drum pumps, pipes, electric impeller pumps, distributors and fittings. In the pilot project, 300 metres of steel pipe was laid in order to supply various bearing points with grease at the 80 lubrication points (Figs. 4+5). Pranghofer also contributed towards the project. At the neighboring ballast works Bauer, he devised a solution that he also had installed: The electronic control cabinets were equipped with dust-proof glass control windows, so that employees can check the status of the displays at a glance – without letting the omnipresent dust get in the cabinet (Fig. 6).

These are not standard solutions because the degree of lubrication required depends on the location. Some bearing points receive 80 grammes of grease per day, some just a few grammes per week. "Oswald has teamed up with plant manager Pranghofer to then determine the grease requirements based on the data from the individual bearing points and the manufacturer's lubrication plans," Müller explains. "The whole thing is like a tree: The pump is the root from which our system branches off to the individual lubrication points." Using this information and that provided by the plant manager, the service technician has completely planned the plant's lubricant systems.

The close interaction of the service technician with the customer has proved to be particularly successful for customised solutions: In one case, the operations manager only wanted to connect one sieve system to the lubrication system, but Oswald recommended that there should be a connection for all adjacent storage locations, e.g. of conveyor systems. Pranghofer says: "Now, the new plant is fully supplied with lubricant from two Bielomatik systems automatically." The longer service life of the machine, the reduced time required for personnel deployment and the lower number of



**Fig. 4:** Lubricant supply



**Fig. 5:** Conveyor belt with lubrication point



**Fig. 6:** Operations manager Toni Pranghofer and service technician Oliver Oswald in front of a dust-proof electronics cabinet with glass control window

**Fig. 7:** Jaw crusher to be connected to the Bielomatik automatic grease supply





failures and malfunctions all speak for this form of continuous lubrication.

Moeck provided the electrical control for the pump and integration into the entire control system. "In our plant control system, there are now two windows that indicate whether the lubrication is running or not," adds Pranghofer. "I only get a simple error message on the screen, but it is sufficient. Because then a technician goes to the plant and fixes the malfunction."

### Alfred Moeck KG, Lenningen

Founded in 1947, the company has developed into a large, well functioning quarry and ballast plant supplying the Greater Stuttgart area with products made of "White Jura" material. Together with the neighbouring gravel plant Jakob Bauer Söhne GmbH & Co. KG, Moeck founded the joint gravel distribution company Schottervertrieb Vordere Alb GmbH & Co. KG (SVA) in the municipality of Erkenbrechtsweiler in 2006, which has since united both companies under one roof.

**Contact:**

[www.moeck-kg.de](http://www.moeck-kg.de) and [www.schottervertrieb.de](http://www.schottervertrieb.de)

### Nikolaus Fecht

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## Conclusions and Outlook

The company cannot provide parameters as to whether there are any positive economic consequences, but the customer's satisfaction is reflected in a pending new installation: Service technician Oswald will soon be in action connecting the jaw crusher (a machine for shredding very large pieces of rock) to the Bielomatik automatic grease supply (Fig. 7).

### bielomatik Leuze GmbH + Co. KG

With a workforce of 650 throughout the world including 350 at its headquarters in Neuffen/Baden-Wuerttemberg in Germany, the bielomatik Leuze GmbH + Co. KG, established in 1946, carries out progressive production technology in lubrication technology and plastic welding systems. Configuration and production of minimum quantity lubrication systems for machining metalworking as well as systems and components for central lubrication of machines and plants. The plastic welding systems sector embraces machinery and complete production lines for welding and processing plastic parts with heating element, vibration, infrared, gas convection or laser technology.

**Contact:**

[www.bielomatik.com](http://www.bielomatik.com)

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