

Schaeffler Global Technology Solutions

Automobile Production

BMW Group, Germany

Automatic Lubrication of a Large-Size Fan

The BMW Group is one of the world's leading manufacturers of premium-class cars. The Group's factory in Regensburg went into operation in 1986, and since then over six million BMW vehicles have rolled off its production line.

Challenge for Schaeffler

A downtime of several hours for the drive-side bearings of the painting facility's large fan was no longer acceptable for BMW. This was caused by overlubrication of the fan's bearing positions. Because a large quantity of lubricant had been added manually on one occasion, the temperature following relubrication rose from 55 °C to as high as 80 °C, leading to temperature overload. This resulted in a disproportionately high level of strain on the lubricant that was used and thus caused the bearing to prematurely fail. The objective was to improve the machine's availability by means of an optimized lubricant supply and reduce the maintenance outlay at the same time. A further requirement was for lubrication to be possible without shutting down the machine.

Schaeffler Solution

Schaeffler and its sales partner Altmann recommended that the BMW Group use the FAG CONCEPT8. With up to 8 outlets, this automatic lubricant system provides precise quantity metering and thereby ensures an optimum supply of lubricant to the large fan. The various lubricant quantities required by the different lubrication points were no problem, as the lubricant system is equipped with four individually adjustable pump bodies.



Technical Information about the Plant

Fans:

Belt-driven radial fans in the waste air section of the painting facility

Antriebsmotor:

Type: SIEMENS LAG315

Output:

- 250 kW
- 1 488 RPM

Bearings installed:

- Drive-side bearings: NU320E
- Fan-side bearings: 6218 C3

Fan shaft plummer block housing:

- FAG SNR housing
- Spherical roller bearing 22226-E1 bzw. 22228-E1





Lubricant supply on the fan drive



FAG CONCEPT8 lubricant system at the base of the fan housing



The four pump bodies can be regulated individually

Customer Benefit

The FAG CONCEPT8 has a whole range of advantages for the BMW Group. All of the fan's lubricating points can be continuously and cleanly supplied with exactly the right quantity of lubricant using a single device. This prevents impermissible temperature increases and the grease in the bearing positions remains fresh for longer. Thanks to the improved lubricant supply, the BMW Group is now able to avoid unplanned fan standstills and the production interruptions that they cause. The servicing outlay has also been reduced at the same time, since the fans can continue to operate even while lubrication work is being carried out, which saves around five to six hours of maintenance work every month. The high demand for BMW vehicles means that the paint shop is currently working in three-shift operation. Every standstill reduces the number of vehicle paint jobs that the facility can complete, which in turn causes problems with the outgoing supply of vehicles. Further ways of optimizing the lubricants in use by the BMW Group are also continuously being developed as part of the long-term on-site support service provided by Schaeffler's sales partner Altmann.

What's special

The application described here is a customer-specific solution with standard components and can be used wherever ventilation systems are employed. The grease cartridges can be filled with either high-performance greases from Schaeffler's Arcanol range or with customer-specific greases. The solution described here can also be applied to other painting and ventilation facilities. Other applications for the FAG CONCEPT8 include electric motors, pumps, gearboxes, and compressors.

Technical Information about the Solution

Lubrication system:

FAG CONCEPT8 with 4 pump bodies, each with two outlets

Cartridge with lubricant reserve:

800 cm³

Mounting position:

Directly on the base of the fan housing

Lubricating points supplied:

- 2 plummer block housings on the fan shaft
- 2 bearings in the drive motor
- Sealing of the fan wheel housing