



## Bares its teeth to swarf

### SINGLE-STAGE MTB BLOCK PUMP AT ZF GETRIEBE GMBH IN SAARBRÜCKEN

ZF FRIEDRICHSHAFEN AG IS A LEADING GLOBAL SUPPLIER TO THE AUTOMOTIVE INDUSTRY WITH APPROXIMATELY 55,000 MEMBERS OF STAFF EMPLOYED AT 120 SITES ACROSS 25 DIFFERENT COUNTRIES. ITS PRODUCT RANGE INCLUDES GEARBOXES AND CONTROLS AS WELL AS CHASSIS COMPONENTS AND COMPLETE AXLE SYSTEMS AND AXLE UNITS. THE COMPANY CURRENTLY HOLDS FIRST, SECOND OR THIRD POSITION ON THE GLOBAL MARKET FOR ALL OF ITS CORE PRODUCTS. SHAREHOLDERS IN THE COMPANY INCLUDE THE ZEPPELIN-STIFTUNG [ZEPPELIN FOUNDATION] WITH A SHARE OF 93.8%, GOVERNED BY THE TOWN OF FRIEDRICHSHAFEN, AND THE DR.-JÜRGEN-ULDERUP-STIFTUNG [DR.-JÜRGEN-ULDERUP FOUNDATION] OF LEMFÖRDE, WITH A SHARE OF 6.2 PERCENT.

ZF produces automatic gearboxes for cars and light utility vehicles on its Saarbrücken site – around 1 million automatic gearboxes leave the company premises every year.

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**TOPIC:**

Single-stage MTB block pump at ZF Getriebe GmbH in Saarbrücken

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**LOCATION:**

Saarbrücken

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**COMPANY:**

ZF Getriebe GmbH

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Modern ZF six-speed automatic gearboxes with short switch intervals and favourable consumption values are now incorporated into BMW, Audi, Jaguar and Maserati vehicles, to name but a few.

The gearboxes delivered and yet to be treated by the foundry are precision machined (milled, drilled, tapped), washed and prepared for assembly at ZF after having undergone an assessment. This takes place in three shifts that work around the clock, often even functioning seven days a week.

Each of the four large process lines has its own separate circuit for cooling lubricant. Despite separation of the swarf immediately after machining, approximately 20 percent of the swarf remains in the cooling lubricant and is also forced to pass through the return pump on its way to the filter – it is therefore essential that the pump has a robust design.

As the global market leader in the field of cooling lubricant pumps, Grundfos offers the most extensive range of specialised pumps.

The MTB-series single-stage block pumps are designed for insertion on the ‘dirty’ side of machine tools and transport contaminated cooling lubricant (up to 90 m<sup>3</sup>/h, maximum 5 bar) together with swarf from the cutting machinery and other abrasive components.

The rotor on the MTB pump is particularly suitable for fluids containing swarf and solid materials: With its half-open design (‘SuperVortex Rotor’), the pump has the capacity to transport solid materials and swarf measuring up to 20 mm in size and also functions in ‘slurp operation’ (i.e. short-term air suction).

The return pumps are in operation practically round the clock at ZF Saarbrücken – therefore it pays to have MTB-pumps fitted with a high efficiency motor of EFF Class 1 as standard. As a result, these pumps contribute to the reduction of the Total Cost of Ownership (TCO).

#### MTB-SERIES PUMPS

The single-stage centrifugal return pump in block design is fitted with a mechanical seal and is primarily used in parts cleaning machines and washer systems, in the disposal of cooling lubricants and in waste water treatment. Particles measuring up to 20 mm ball diameter can be reliably transported using the SuperVortex Rotor. The maximum rate of flow is 1500 l/min.

*“Grundfos handled the changeover to the MTB pumps in a highly professional manner. It is clear that the people in the machine tool industry already feel at home” (Ralf Dörr, Gearbox Process Planning, ZF Saarbrücken).*

Grundfos pumps have a high efficiency factor thanks to optimized hydraulics. This offers the user two advantages: The pumps operate economically (energy efficiency) and filter less warm energy into the cooling lubricant (15 to 20% less than conventional pumps). Grinding machines in particular are very temperature-sensitive and require an almost constant cooling lubricant temperature in order to be able to process a part within the specified small tolerances.

Last but not least, the Back-Pull-Out Construction of the MTB pump enables disassembly of the motor and rotor without the need to interfere with the pipeline. Therefore, even larger pumps can be serviced by one person using a lifting gear.

Ralf Dörr, Gearbox Process Planning, ZF Saarbrücken explains: “*Grundfos handled the changeover to the MTB pumps in a highly professional manner. It is clear that the people in the machine tool industry already feel at home.*”