

Fine filtration in grinding oil at no extra cost

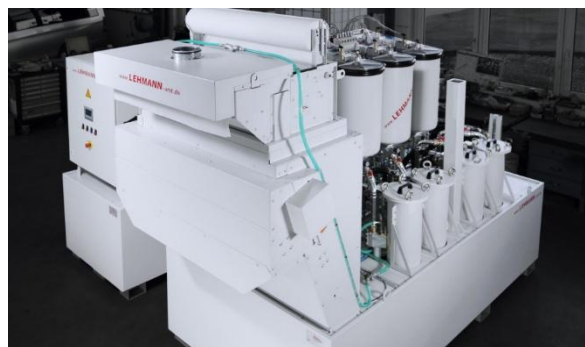
Lehmann-UMT filter systems are true game changers – ensuring a reliable supply of oil to multiple grinding machines in 3-shift operation and unmanned over the weekend.

Centralized system for tool grinding – filtration reimaged.

In 2019, WERKÖ GmbH, a manufacturer of high-quality precision tools, decided to relocate to a new site with increased space to better meet customer demands. To further enhance its consistently high processing quality, the company explored existing optimization potential in the treatment of the cooling fluids used.



Employees of Lehmann-UMT GmbH during the installation of the filter domes



Multi-stage Fine filtration down to 2µm

Lehmann-UMT was quickly found as a partner, possessing the necessary expertise for such demanding projects. One of the challenges lay in the fact that WERKÖ works with materials such as carbide and HSS. The particles generated during the machining process cannot be filtered down to a fine 2 µm using a standard filter system, as they place extremely high demands on the filtration process. Therefore, a custom-designed, high-performance filter system from Lehmann-UMT was chosen, which reliably supplies several grinding machines with oil.

Low wear in 3-shift operation

The central Lehmann-UMT filtration system efficiently processes the used cooling fluids, ensuring a filtration fineness of 2 µm and cooling the grinding oil to guarantee optimal production. The advantages of this system, tailored to the customer's specific needs, are clear: 'The system operates with extremely low wear in three-shift operation and unmanned over the weekend,' says T. Jahn of WERKÖ GmbH. This results in savings in personnel costs, reduced service and maintenance requirements, and the highest quality in production.

Multi-stage filtration provides 20% more performance and 10% more energy efficiency.

Using multi-stage filtration, the system achieves a filter capacity of 500 l/min with a filtration fineness of 2 µm in the area of hard metal and HSS machining. The filter system consists of a magnetic filter that removes the ferromagnetic chips. This removes the main contaminant load from the process with extremely energy efficiency. A slant vane separator is used as the second filtration stage. Utilizing gravity, the particles in the fluid sink to the bottom and settle at the tank floor. They are then automatically removed by a scraper system. The fluid then enters the StingR® fine filter, which filters out all particles down to a size of 10 µm. LEHMANN-UMT's Edge technology ultimately ensures the required filtration fineness of 2 µm.

The backflushed particles from StingR® and Edge are separated and discharged in a concentrator. This precise filtration not only extends the service life of the coolant, machine tools, and other tools, but also further reduces the occurrence of grinding burn during the process.

Sustainability – for clean processes

The filter system is characterized by its exceptional energy efficiency, as it primarily utilizes naturally occurring energy sources from the environment (such as magnetism and sedimentation). It excels in even the most demanding processes, boasting long service lives and minimal wear. Mr. Jahn of WERKÖ GmbH shares his experience: 'Since its commissioning four years ago, no component replacements due to wear have been necessary on the filter system.' This long lifespan and low spare parts requirement conserve resources and reduce environmental impact.

What is the conclusion?

"Clean coolant is essential for the long service life of our CNC grinding machines, good tool life of the grinding wheels, and, of course, crucial for the outstanding quality of our products," confirms T. Jahn. Under these conditions, unmanned production is possible for several days in conjunction with the machining centers. Mr. Jahn summarizes: "All in all, we made exactly the right decision in 2020 – we opted for filter systems from Lehmann."