

Magnetic Filters



Our magnetic filters are devices that are used to remove ferromagnetic particles from liquids. These particles are often made of iron, steel or other magnetizable materials and are created by corrosion, abrasion or production processes. The magnetic filter uses magnets to create a strong magnetic field in the filter through which the liquid to be cleaned passes.

When the medium flows through the filter, the magnetizable particles are attracted to the magnets and held on their surface. This prevents the particles from circulating further in the system. The collected particles remain attached to the magnets until the filter is cleaned. Depending on the design of the filter, this can be done by manually removing the particles or by automatic cleaning mechanisms.

The advantages of a magnetic filter are numerous. Magnetic filters are very effective as they remove even the smallest magnetic particles that cannot be captured by other types of filters. The magnets do not lose their effectiveness over time and therefore work completely without consumables, which keeps maintenance and operating costs low.

Advantages:

- Significantly reduced operating costs due to longer service life of the fluid used
- Reduced machine wear as particles up to 1 μm are removed
- Longer service life of the tools used
- Improved surface quality thanks to clean coolant
- No consumables required

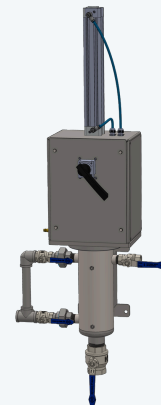
FMF

The magnetic filter type FMF impresses with its simple design and fabulous cost-benefit ratio. The filter consists of a filter housing with one to six magnetic rods. These remove the ferritic particles from the liquid flowing through the filter. The magnetic rods must be cleaned manually when they are saturated with particles.



SMF

This type of filter allows cleaning without having to open it or get your hands dirty. The magnets are placed in casing tubes on the outside of which the particles accumulate under the influence of the magnetic forces. During cleaning, the magnets are pulled out of the casing tubes by means of a pneumatic cylinder. Without the magnets, the magnetic force is no longer present and the particles can be flushed out of the filter.



ASMF

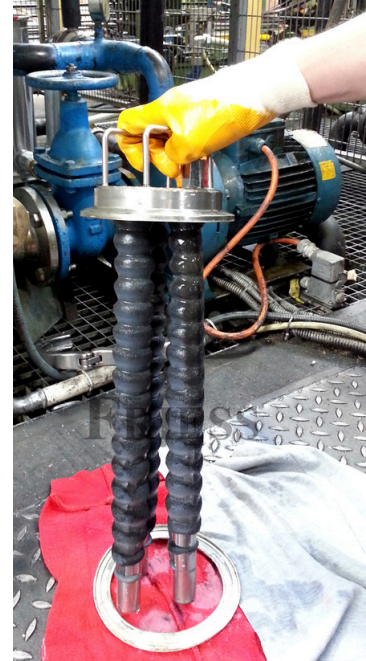
This magnetic filter automates the entire SMF type process by means of electrical control and pneumatically controlled ball valves. This allows the magnetic filter to be operated independently of human intervention.



Application Examples

Magnetic Filtration in Cast Iron Machining

A manufacturer of gear pumps produces immense quantities of fine cast iron particles when machining the cast housings. This resulted in high maintenance costs and tool wear, as well as increased change intervals for the cooling lubricant. Previous filtration solutions, such as chip conveyors and belt filters, were not able to get the particle load under control. By using a Friess magnetic filter in the chip conveyor tank, considerably more particles were removed, which reduced the load on the belt filter and extended the service life of the cooling lubricant. The use of Friess magnetic filters was implemented on all machine tools due to the good results.



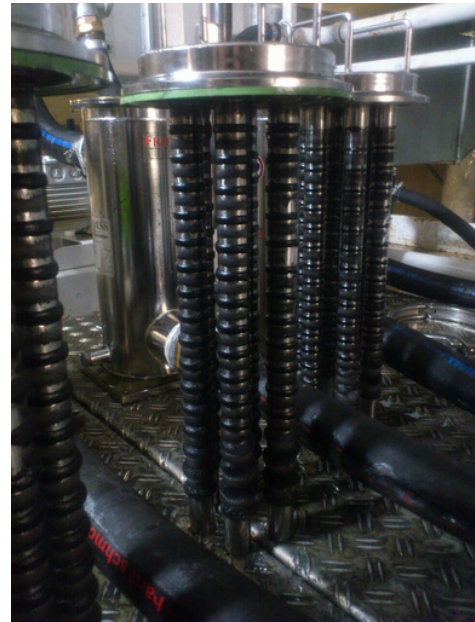
Magnetic Filter as Pre-Filter on an Eroding Machine

In a company that specializes in the production of punching tools, several eroding machines are used to process high-strength steels. Due to the high capacity utilization, the factory-fitted filters for the dielectric fluid were used heavily, which led to frequent changes of the filter inserts. To reduce the costs of frequent filter changes, a Friess magnetic filter type FMF was installed, which acts as a pre-filter. This significantly extended the replacement interval and thus saves considerable costs for filter inserts. Due to the improved filter fineness of the magnetic filter, the conductivity of the dielectric fluid is also sustainably reduced, which contributes to operational safety.



Magnetic Filter for the Filtration of Cooling Water Systems

A machining company relies on a cooling water system to cool various components on its machine tools. Due to the large number of machine tools, this is designed as a central cooling water system. Rust was forming in the entire system due to incorrect dosing of the rust inhibitor. The existing filters were not designed to cope with this large amount of dirt and became clogged so quickly that the system was temporarily operated without filtration. In order to get the situation under control again and remove the rust, several Friess magnetic filters type FMF were installed at various points in the cooling system. This effectively removes the dirt and protects the heat exchangers from damage and deposits.



Magnetic Filters used to Optimize Washing Processes

A leading manufacturer of commercial vehicles had an increased rate of complaints about damage to engine components due to particle contamination ex works. An investigation into the manufacturing process revealed that after washing the camshafts, large quantities of particles were still adhering to the components, which led to corrosion damage in the long term. The existing filtration system was not able to keep the washing liquid clean enough to achieve an optimum cleaning result. The use of an automatic Friess magnetic filter type ASMF has demonstrably improved the cleaning result so that no particles adhere to the camshafts after washing.

