RMF SYSTEMS

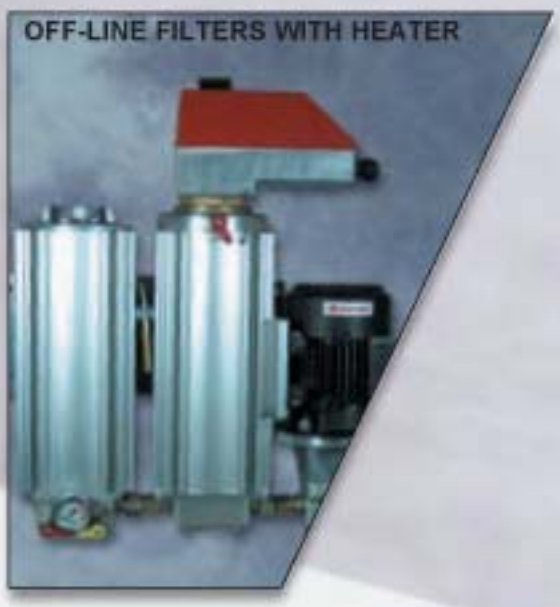
Radial

Micro

Filtration


BY-PASS FILTERS


'AIR CONDITIONERS'


OFF-LINE FILTERS WITH HEATER


OFF-LINE FILTERS

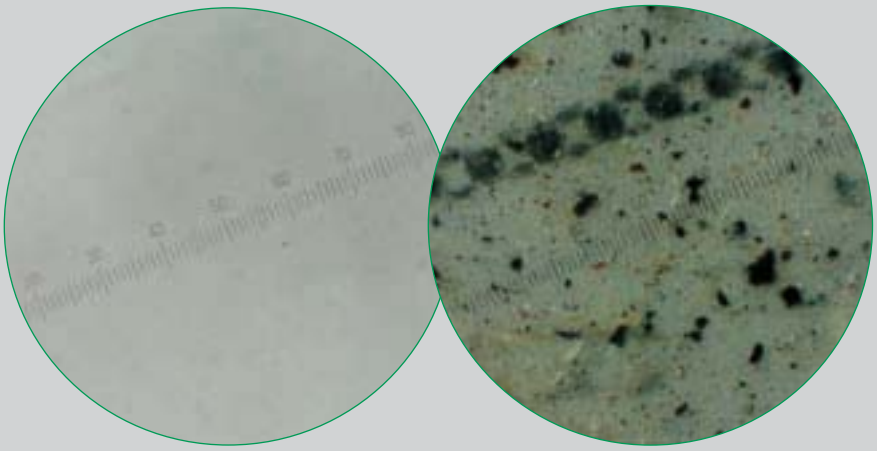
www.bsf-filtertechniek.com
www.rmffilter.com

RMF SYSTEMS

SYSTEM CONTAMINATION

In the hydraulic market it is an accepted fact that contamination causes 80% of all mechanical failures. This contamination results from the presence of solid particles such as metal, sand and rubber.

Changes in temperature cause water vapour to condense, resulting in unwanted water in the oil and the presence of this free water helps to accelerate the deterioration of the oil.



Mainstream filters are incapable of removing the smallest particles, smaller than 2 micron (better known as silt). Fluctuations in the supply and the resulting changing conditions mean that these filters cannot carry out fine filtration; most of the silt remains in the system and affects the chemical compostition of the oil.

All these problems lead to reduced oil usage life and increases in component wear, maintenance costs and machine down time.
Removing silt and preventing the formation of free water can combat these problems.

MICRO FILTRATION AND AIR CONDITIONING

At the heart of the RMF Off-line and By-pass filter units is the unique microfilter element. This filter works according to the radial through-flow principle.
As it has a filter fineness of 0.5 micron, it is able to remove the smallest of contamination particles (silt) from the oil.

The filter material is composed primarily of cellulose, which is applied by a special wrapping method.

This material is capable of retaining solid particles and absorbing water. This helps to prevent the chemical deterioraton of the oil and the formation of various acids and sludge.

Hydraulic cylinder extension for example, can draw air, including contamination particles and water vapour into the oil reservoir.

The water vapour condenses due to temperature changes and causes not only oxidation of the oil, but can also lead to serious mechanical wear in the system.

Standard air filters remove a certain amount of solid particle contamination from the air but allow water vapour to pass through.

The special RMF 'Air conditioners' ensure that incoming air is first dried and then filtered.

OFF-LINE FILTERS

RMF Off-line filter units can be applied to every imaginable industrial application where hydraulic or lubrication systems are present. An integrated pump-motor unit draws out of the tank, filters it and pumps clean oil back into the system. Off-line filter units can continue to work even when the main system is not in use. The standard range offers filter units for reservoirs with a capacity of up to 11,000 litres.

Over the years, RMF Systems have developed considerable experience in cleansing hydraulic and lubrication systems, helping to keep them clean and reduce down time. Successful applications can be found in the following industries:

- steel;
- plastic injection moulding;
- marine;
- petrochemical;
- pulp & paper;
- flight simulator.

HEATED OFF-LINE FILTERS

The 'Heated unit' is a unique progression of the Off-line filter series. The filtration of high viscosity oils, in both hydraulic and lubrication systems, is an almost impossible task for fine filters as the thickness of these oils 'block' almost all normal filter systems.
The RMF Heated unit warms the oil in a specific manner, allowing the viscosity to be reduced to a level which will permit fine filtration without the oil being exposed to high temperatures that could cause overheating and burning of the oil, rendering it useless.

The Heated units have proved their worth over a long period and are frequently applied to:
- gearbox-lubrication systems;
- wind power drive systems;
- outdoor hydraulic systems;
- marine hydraulic systems.

BY-PASS FILTERS

The RMF By-pass filter units are especially designed for mobile applications in the hydraulic and/or transmission systems.

In the absence of a pumped system, the oil is drawn from the main system by means of a specially designed and integrated flow valve. The amount of oil extracted at any one time is insignificant ensuring that it will not affect the working of the main system.
Most commonly used biodegradable oils in the mobile sector are suitable for filtration with RMF filter elements.

Over the years, RMF Systems have developed considerable experience in cleansing hydraulic and transmission systems, helping to keep them clean and extend equipment life.

Successful applications include:
- excavators;
- wheel loaders;
- forestry machines;
- asphalting machines;
- cement mixers;
- aircraft ground support machinery;
- agricultural machines.

'AIR CONDITIONERS'

Standard air filters remove a limited amount of solid particle contamination from the air, but allow water vapour to pass through.
RMF 'Air conditioners' are highly effective in removing both solid particles and water vapour from the air.
The RMF 'Air conditoner' allows tanks to breathe clean, dry air. The revolutionary Z-R gel granules dry the air before it enters the oil tank and this dry air is then filtered by a 3 micron fibre glass air filter. The air which enters the oil tank is then clean and dry.
The uptake of moisture can be observed by the change in colour of the indicator granules in the Z-R gel.

They turn from ruby-red (active) at the beginning until light orange at saturation (replace).
The Z-R gel granules are completely replaceable.
The optional contamination indicator shows when the air filter is in need of replacement.

RMF 'Air conditioners' can be applied to hydraulic drive systems, gearboxes, diesel storage tanks and a wide range of other uses.

Examples of succesful RMF 'Air conditioner' applications can be found in the:
- steel industry;
- paper industry;
- cement/concrete industry;
- aircraft industry;
- wind energy industry.

ACTIVE

REPLACE

THE ADVANTAGES OF RMF SYSTEMS

Less malfunctions
The tolerances between moving parts in servo valves and proportional valves are constantly reducing.
The result is that even the smallest amounts of silt can cause damage to the system. RMF filters remove this silt.

Less frequent oil changes
Increasingly strict environmental laws in the area of oil changes, oil storage and the disposal of used oil leads to corresponding cost increases.
RMF filters means less oil changes, and therefore less costs.

Extended usable life of the oil
Frequent oil changes are generally the result of chemical deterioration of the oil caused by the oil oxidation process. This process is brought into action by the presence of silt.
If water is also present, this acts as a catalyst and the oxidation process is accelerated. RMF filters remove silt AND water from the oil.

Protection of expensive main stream filters
RMF Systems filters are applied in By-pass or Off-line configurations and constantly clean oil from the reservoir. The oil which reaches the main stream filter is therefore cleaner, and allows longer usage life of this expensive filter. The main stream filter then acts primarily as an emergency filter.

Less machine down time
Reduction of defects caused by worn components and less frequent oil changes mean an increase in production time.

RMF CHARACTERISTICS IN SHORT

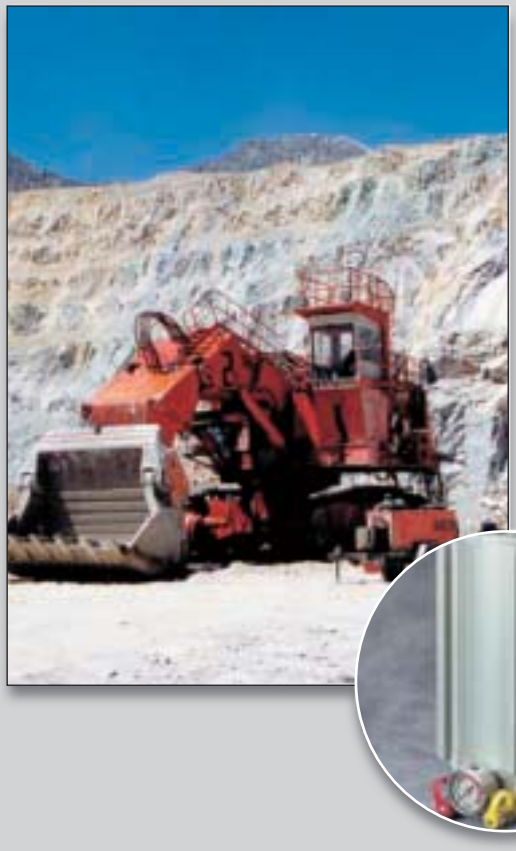
The oil filters have:
- a filter fineness of 0.5 micron ($\beta\ 0.5 \geq 200$, $\beta\ 2 \geq 2{,}330$);
- large particle collection capacity;
- high filtration capacity due to depth effect;
- large water absorption capacity.

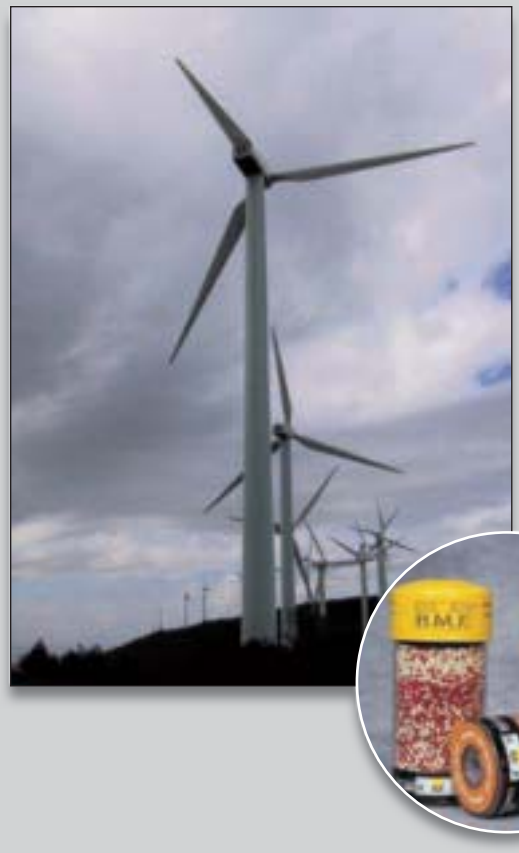
RMF Systems filters:
- do not adversely affect viscosity or additives;
- do not remove additives;
- reduce the oxidation process;
- reduce the forming of acids;
- SAVE COSTS.

Measuring points
To facilitate quality control of the oil, the RMF By-pass and Off-line oil filters are equipped with two quick connect measuring points to which a particle counter can be attached. This offers the possibility of measuring the oil cleanliness level on-site and under working conditions.
The measuring points also allow oil samples to be drawn for external analysis.

The solution
RMF Systems offer the most complete and efficient filter series available today.
RMF Systems is THE solution to your contamination problems: simple to fit, equipped with extremely efficient filters and offering the opportunity for simple control of oil cleanliness.

APPLICATIONS





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