

072316

# **FILTERMAG<sup>®</sup>**

**INDUSTRIAL PRODUCTS DIVISION**

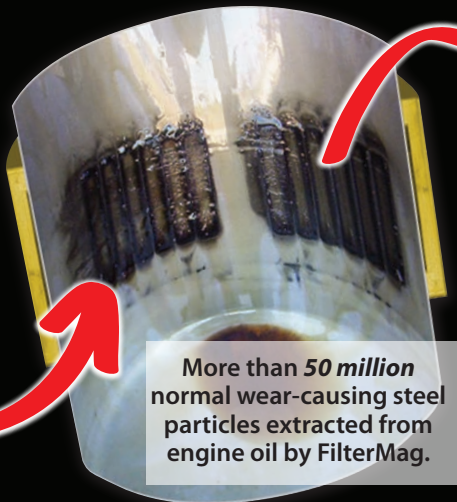
## Hydraulic Systems

**Proven in the Laboratory**  
**Proven in the Field**  
**Proven to Save Money**

**Reduce Wear • Mitigate Damage • Increase Reliability • Extend Equipment Life**



**FILTERMAG<sup>®</sup>** **RESULTS**  
**Outside—** **Inside**



More than 50 million normal wear-causing steel particles extracted from engine oil by FilterMag.

**Microscopic Equipment Killers**



Magnified view of damaging steel particles small enough to pass through any standard filter.  
**All captured by FilterMag.**

# Proven in the Laboratory

FilterMag was proven to quickly reduce particle counts when tested in the laboratory of a major hydraulic equipment manufacturer.

**Equipment:** Hydraulic Power Unit

**Filtration:** Two spin-on filters rated at 10µm

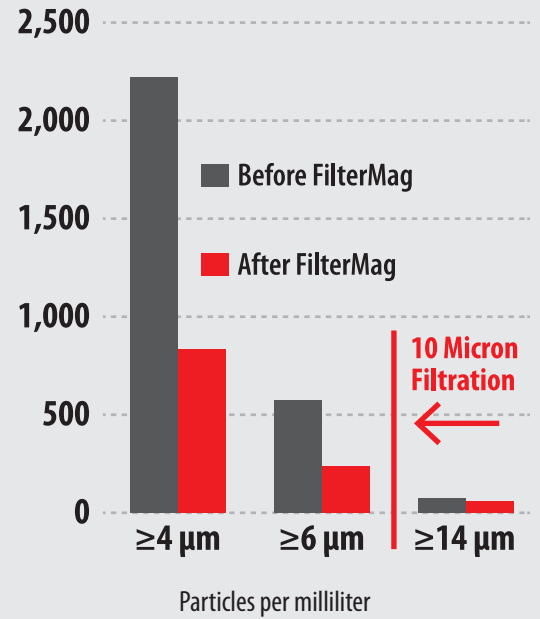
**FilterMags:** CT4.9s snapped onto the each filter

**Run Time:** Two hours after FilterMag installation

**Results:** 62% reduction in particles from baseline



## 62% Particle Reduction in Just 2 hours!



### FilterMag Results:

	≥4µm	≥6µm	≥14µm	ISO Code
Before FilterMag	2255	520	35	18/16/12
After FilterMag	863	232	31	17/15/12
<b>Reduction %</b>	<b>62%</b>	<b>55%</b>	<b>11%</b>	

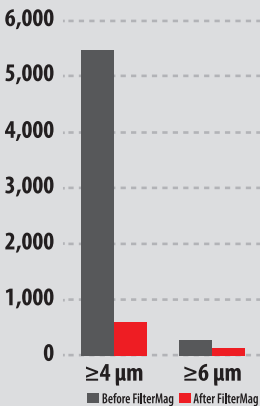
# Proven in the Field

Inside, outside, fixed or mobile—FilterMag works where your hydraulics work. Here are a variety of real world results from our customers:

### Fixed

Five Spin-on filters  
Four CT4.9s on each filter

**91% Reduction**

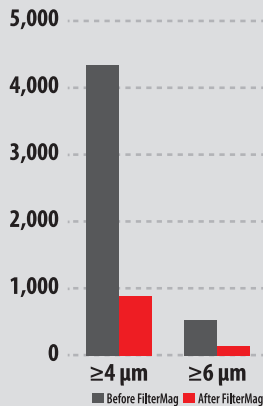


Conveyor

### Mobile

Two Spin-on filters  
Four CT3.8s on each filter

**77% Reduction**

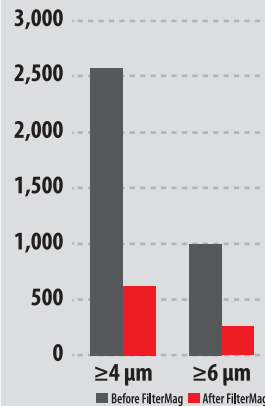


Haul Truck

### Manufacturing

Two Spin-on filters  
Four CT4.9s on each filter

**76% Reduction**

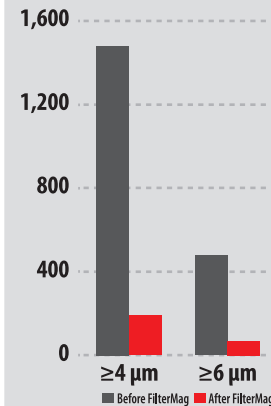


Press

### Manufacturing

Two Spin-on filters  
Four CT4.9s on each filter

**84% Reduction**

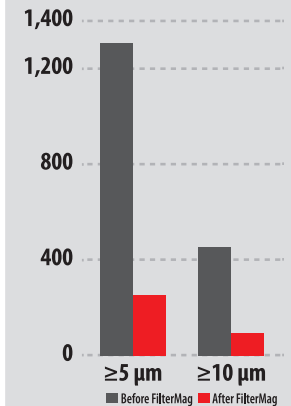


Press

### Multi-Function

Four Cartridge filters  
Four XT4s on each filter

**80% Reduction**



Drill

# Proven to Save Money • \$3.5 Million Saved with **FILTERMAG**<sup>®</sup>

## Hydraulic Power Unit



## Faster repairs mean less downtime.

When a hydraulic pump fails, the downstream debris can wreak havoc with your system. FilterMags installed on your high pressure filters can capture most of the damaging debris too small for your filters to stop. This can significantly reduce the amount of time and labor required to get up and running again.

Customers with large critical path hydraulics have reported **savings in excess of \$3 million** as a result of FilterMag.

## Proven Results

- **\$3.5 Million Saved in Repair and Downtime**
- **90% Reduction in Particle Contamination**

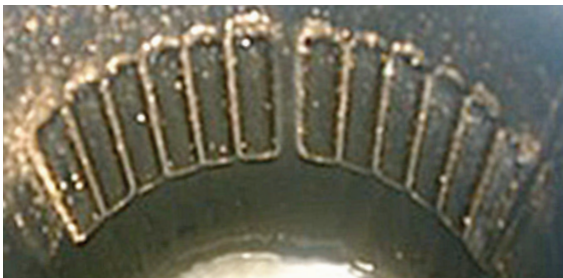
### Case Study Details—Leach Pad Stacker

Four FilterMag CT4.9s were installed on each of the four high-pressure filters positioned immediately after the pump. The single return filter received four additional CT4.9s.

Three weeks after installation, a pump failure generated a storm of particles from the Nibral (nickel bronze aluminum alloy) impeller. Nickel is highly susceptible to magnetism, so **FilterMag caught 69 million particles** that would have passed through the 10 µm filters contaminating the hydraulic piping system and degrading the process equipment.

Historically, this type of failure would require 4–10 days of downtime to repair. Cleaning out the hydraulic piping (pigging the lines) was a substantial part of the repair process. Because FilterMag captured virtually all of the impeller debris, the lines only required a flush. The pump, filters, and fluid were replaced and the Leach Pad Stacker was back to work in less than two days.

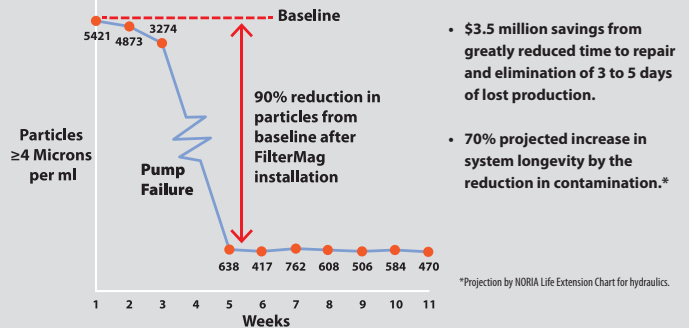
**The mining company estimated they saved a minimum of \$3.5 million, thanks to FilterMag.**



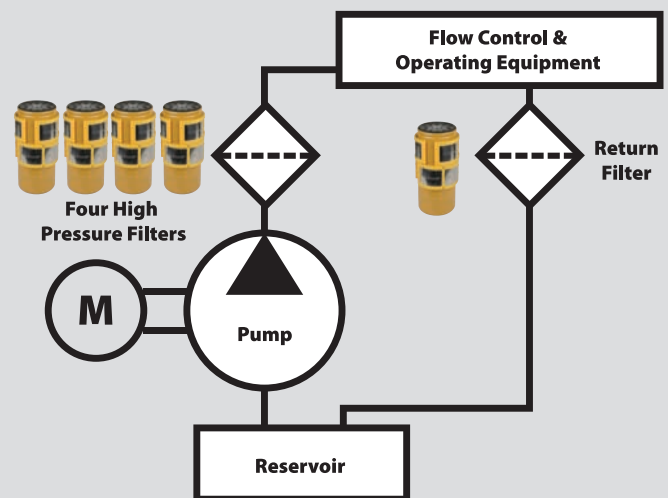
*Cut open high pressure hydraulic filter showing tens of millions of particles captured during a hydraulic pump failure. Most particles are smaller than 10µm.*

## **FILTERMAG**<sup>®</sup> INDUSTRIAL PRODUCTS DIVISION

### 90% Reduction in Particle Contamination with FilterMag.



### FilterMag placement on high pressure and return filters



Proven to Save Money • \$60,000 Saved with **FILTERMAG®**



## Blast Hole Drill Case Study

**\$60,000 savings on each drill's hydraulic system.**

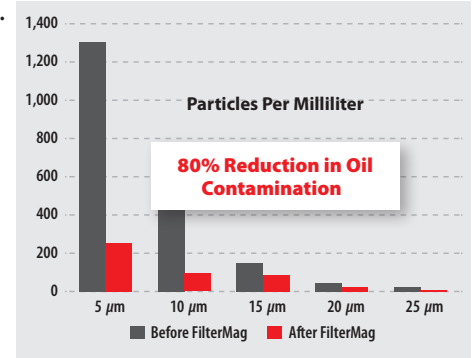
**80% Particle Reduction with FilterMag**

### Extend the Life and Reliability of Hydraulic Systems.

An 80% particle reduction in hydraulic fluid equates to a 60% life extension.

Improving the cleanliness of the fluid enables an additional 6,000 hours of operation before the system will require rebuilding. The additional hours reduced the hourly operating rate by 38%.

The Blast Hole Drill hydraulic system uses four FilterMag XT4s installed on each of the four canister filters.



Particles Per Milliliter from 5 to 100 Microns Before and After FilterMag

	≥5 µm	≥10 µm	≥15 µm	≥20 µm	≥25 µm	≥50 µm	≥100 µm
Before FilterMag	1301	455	144	49	28	2	0
After FilterMag	259	99	90	27	13	0	0
Reduction %	80%	78%	38%	45%	52%	100%	0%

## If Lubrication Were Perfect, Nothing Would Ever Wear Out.

Normal wear generates tiny steel particles that remain suspended in oil. These particles are so small they pass through the most advanced oil filtration systems.

When the oil circulates back into the equipment, these same particles are carried into every lubricated space. This particle laden oil will continue to lubricate, but it will also cause an exponential increase in wear while it circulates. The longer oil remains in the system, the greater the wear.

**FilterMag extracts normal, wear causing, steel particles from oil with its powerful, focused, magnetic field technology.**

These particles are permanently trapped on the inside wall of the filter and are thrown away when you change the filter. Slide the FilterMag off the old filter; snap it onto a new one and it goes right back to work protecting your equipment.

**FilterMag's multi-patented technologies have been shown to reduce wear, increase reliability, lower maintenance costs, and extend equipment life by 30%, 60% or more.**



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**Reduce Wear • Mitigate Damage • Increase Reliability • Extend Equipment Life**