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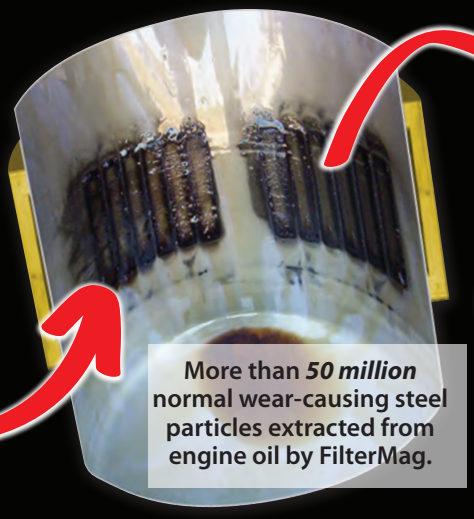
FILTERMAG®
INDUSTRIAL PRODUCTS DIVISION

Drill
Reliability Enhancement Guide

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



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.***

FILTERMAG® Outside— RESULTS Inside

Case Studies

Compressor Oil

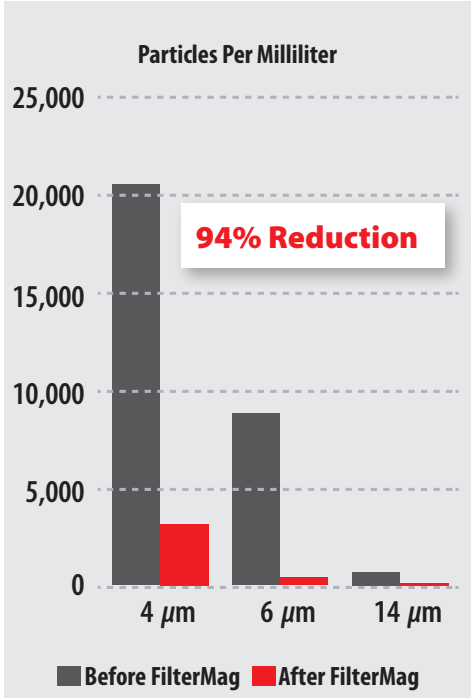
94% Reduction in ≥6µm particle contamination with FilterMag

100% increase in expected life extension. from reductions of 4 and 14 µm particles.

A pair of FilterMag CT4.9s were installed on each filter.

Particles Per Milliliter from 4 to 14 Microns Before and After FilterMag

	≥4 µm	≥6 µm	≥14 µm	ISO 4406
Before FilterMag	20518	8955	285	22/20/15
After FilterMag	3258	498	14	19/16/11
Reduction %	84%	94%	95%	



12-Cylinder Diesel Engine Oil

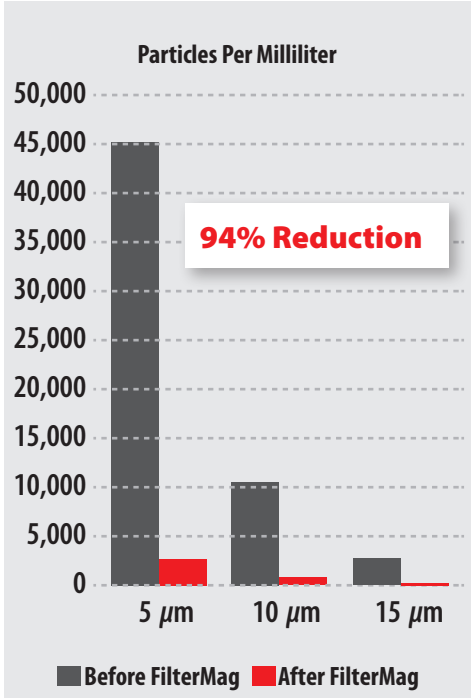
94% Reduction in ≥5µm particle contamination with FilterMag

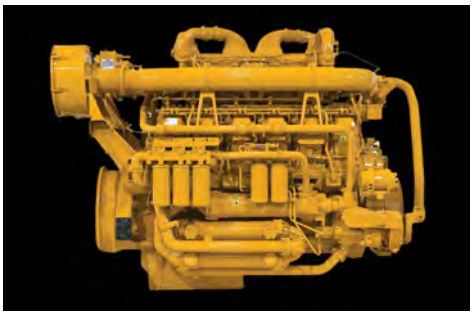
200% increase in expected life extension. from reductions of 5 and 10 µm particles.

A pair of FilterMag CT4.9s were installed on each filter.

Particles Per Milliliter from 5 to 15 Microns Before and After FilterMag

	≥5 µm	≥10 µm	≥15 µm
Av. Before FilterMag	451685	104201	24670
After FilterMag	26777	8485	1798
Reduction %	94%	92%	93%





12-Cylinder Diesel Engine Oil

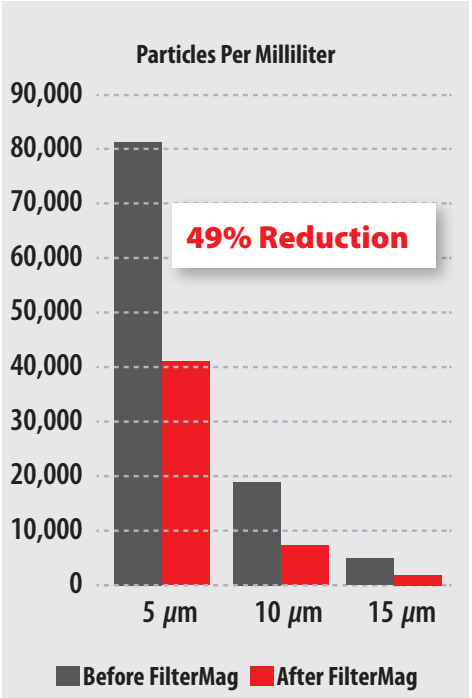
50% Reduction in ≥5µm particle contamination with FilterMag

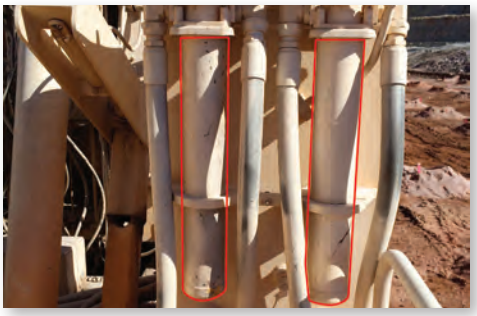
30% increase in expected life extension. from reductions of 5 and 15 µm particles.

A pair of FilterMag CT4.9s were installed on each filter.

Particles Per Milliliter from 5 to 15 Microns Before and After FilterMag

	≥5 µm	≥10 µm	≥15 µm
Before FilterMag	82179	18626	5460
After FilterMag	41650	8617	2074
Reduction %	50%	54%	62%





Central Hydraulic System

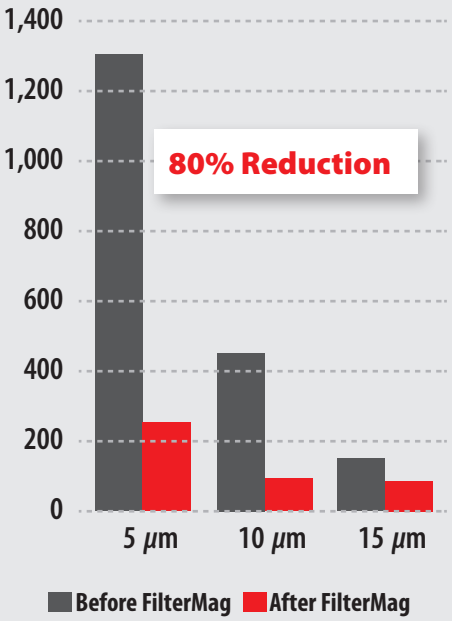
$60,000 savings on each drill's hydraulic system

80% Reduction in ≥5µm particle contamination with FilterMag.

Four FilterMag XT4s were installed on each filter

Particles Per Milliliter from 5 to 15 Microns Before and After FilterMag

	≥5 µm	≥10 µm	≥15 µm
Before FilterMag	1301	455	144
After FilterMag	259	99	90
Reduction %	80%	78%	38%



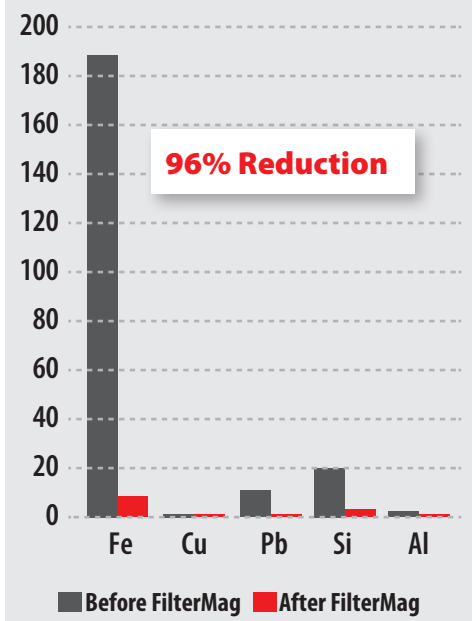
Top Drive Gear Oil Filtration

96% Reduction in wear metal contamination with FilterMag.

Six FilterMag CT3.2s were installed on each filter.

Wear metals in PPM

	Fe	Cu	Pb	Si	Al
Average Before FilterMag	188	1	0	20	4
After FilterMag	8	0	0	4	0



More Applications

Engine Cooling System

Two FilterMag CT3.8s are installed on each filter.

Hydraulic Primary Cooling System

Four FilterMag XT4s are installed on each filter.

Fuel and Water Separation System

Six FilterMag CT4.9s are installed the filter.

Why put six FilterMag CTs on Fuel Filters?

Fuel filtration is a one pass opportunity to grab particles. Particle capture is optimized with six FilterMags covering the filter's exterior.

If there is a primary and secondary filter arrangement, install four FilterMags to the larger of the two and two FilterMags to the smaller.

PV271 Drill Applications Summary

Application	Filters Used, Qty.	Type/Dia. inches (mm)	Applicable FilterMag
Compressor	(4)	Spin-on, 4-1/2 (114)	CT4.9 (8 required)
Diesel Engine Oil	(4)	Spin-on, 5-1/8 (130)	CT4.9 (8 required)
Central Hydraulic System	(4)	Cartridge, 4-3/4 (121) × 28	XT4 (16 required)
Top Drive (gear oil)	(1)	Spin-on	CT3.2 (6 required)
Hydraulic Primary Cooling System	(4)	Cartridge	XT8 (8 required)
Diesel Fuel	(1)	Spin-on, 5-1/8 (130)	CT4.9 (6 required)
Diesel Fuel (water separator)	(1)	Spin-on, 4-1/4 (108)	CT3.8 (6 required)
Engine Coolant (rust removal)	(2)	Spin-on	CT3.8 (4 required)
Central Cooling System	(2)	Cartridge, 4-1/2 (114) × 20	XT4 (8 required)

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.

FILTERMAG®
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