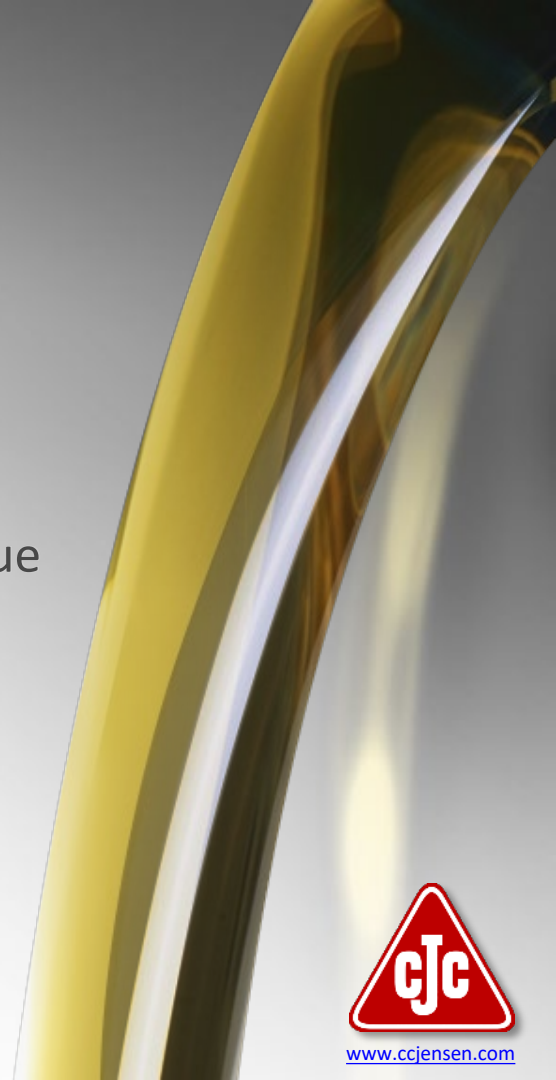
7 Tips for
Using Offline Filters

How to optimize the use of kidney-loop filters to rescue lubricated systems that are too dirty to survive



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Ready to Stretch Your Oil and Component Life with Offline Filters?

What exactly is an Offline Filter?

A system of filtration in which a portion of the total oil volume passes through a filter having its own circulating pump operating in parallel to the main system.

A common phrase to describe an Offline Filter is a so-called “kidney loop” filter. As the name implies, the filter operates like a dialysis machine that filters the blood of patient with failing kidneys. This “kidney loop” process involves drawing oil out of the dirty system and passing it through highly efficient filters to remove contaminants.

Since oil is often referred to as the lifeblood of a machine, it is fitting that “kidney loop” or Offline Filters, are employed to keep lubricant health in optimum condition.

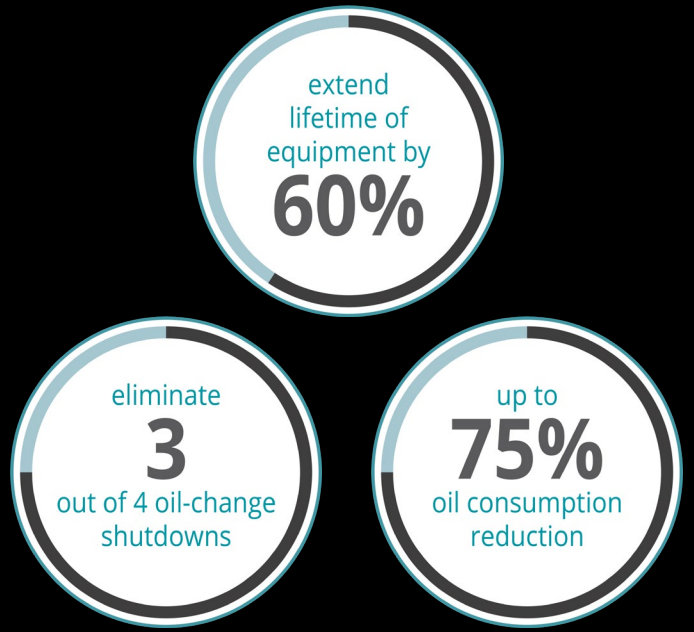
The Offline Filter fits easily close to the machine and does not take up excessive space.

Why My Company Needs Offline Filters

"Mechanical wear and corrosion (chemical degradation) make up approximately 70% of industrial machine failures, costing companies millions of dollars each year. Both wear and corrosion can be mitigated or prevented by proper lubrication practices."

- Noria Corporation

It's estimated that wear costs the U.S. economy **$300 Billion** per year.



Be Proactive!
Use Offline Filters to mitigate and prevent wear.

Why My Company Needs Offline Filters

*"Clean oil is a **must**…*
*The investment **optimizes performance**, **reduces** the risk of **errors and breakdowns**, and **saves** maintenance **costs.**"*

- Ivan Seistrup, CTO at Maersk Supply Service

MAERSK SUPPLY SERVICE

A leading provider of global offshore marine services and integrated solutions for the energy sector worldwide

*"Bearings can have **infinite life** when particles larger than the lubricant film are **removed.**"*

- SKF

SKF®

A global leader in the development, design, and manufacture of bearings, seals and lubrication systems.

Why My Company Needs Offline Filters

Offline Filters clean up your oil, stretching oil and component life. This approach is scalable and produces a significant ROI.

Real world results showing how effective Offline Filters are at cleaning up oil in a severely contaminated gearbox.

TIP 1: Make Dirt-Holding Capacity a Focal Point

The cost of ownership is more important than the cost of purchase.

A high dirt-holding capacity will mean replacing the filters less often.

Focus on using an Offline Filter with the highest available dirt-holding capacity. This type of Offline Filter will provide a 12-month service life.

Real world results showing a cross sectional view of a used Offline Filter insert after 12 months of operation in a wind turbine gearbox. This Offline Filter insert removed 5 pounds of dirt and particles!

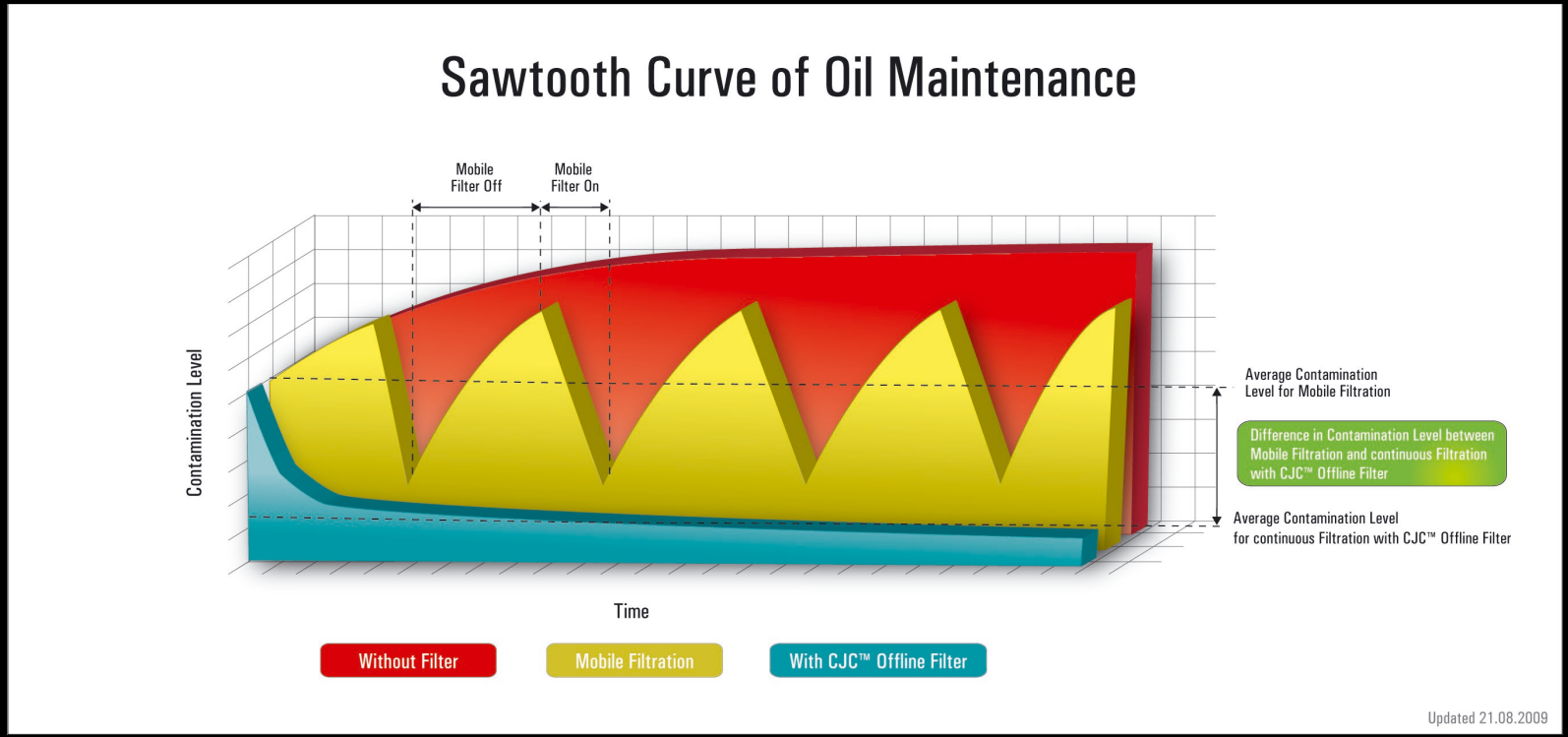
TIP 2: Go Mobile

Offline Filters can be built onto a mobile cart or skid, providing ease of transportation and greater flexibility.

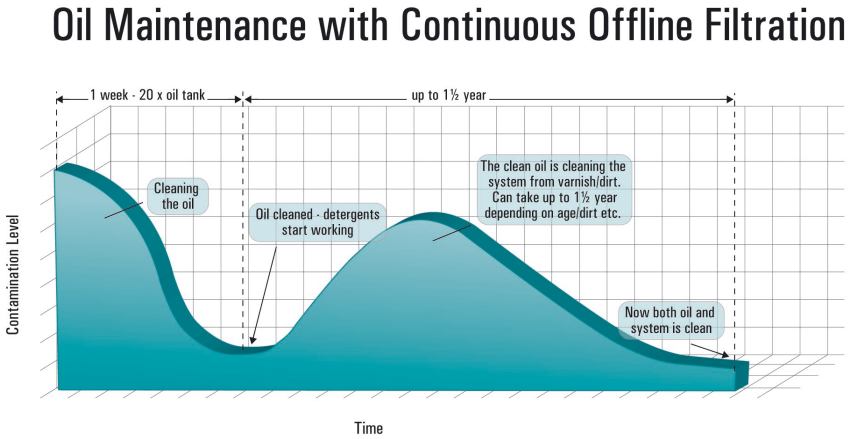
Real world results showing how effective a mobile Offline Filter system is at cleaning up contaminated oil in mining haul trucks.

TIP 3: Make it Dedicated

Dedicated installations of Offline Filter systems keeps contamination at the lowest, optimum level.



TIP 3: Make it Dedicated



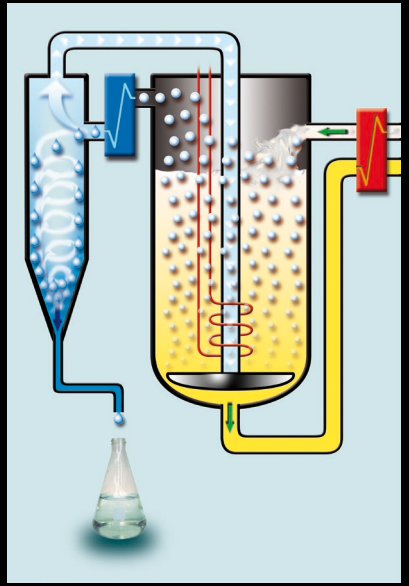
Dedicated installations of Offline Filter systems will ensure that the oil is maintained at optimum cleanliness levels, saving time and resources.

Dedicating an Offline Filter system to each machine is the best investment.

TIP 4: Enhance Water Removal Capacity

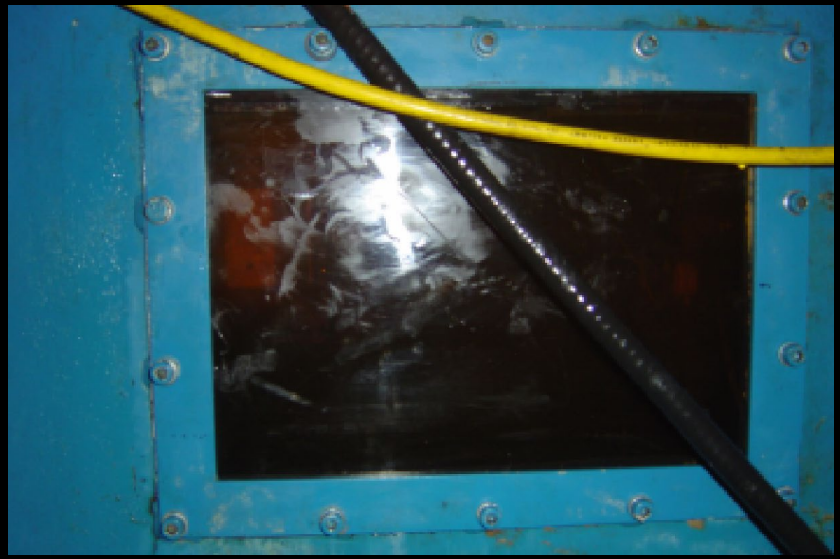
”The presence of water in lubricating oils can **shorten bearing life down to 1 percent or less**, depending upon the quantity present.”
- SKF

Combining a dehydration process with the Offline Filter system maximizes your ability to remove water from oil.



In addition to insoluble compounds (solid particles), this Offline Filter system will remove water in all three phases (free, emulsified and dissolved).

TIP 4: Enhance Water Removal Capacity



Real world results from a Pulp & Paper Mill – Vacuum Blower Lubricating Oil tank with 250 gallons of oil that was severely contaminated with water. The picture on the left shows the emulsified oil *before* adding an Offline Filter with an added dehydration process. This Offline Filter system removed 7 gallons of water in one week without shutting the machine down. The same view of the sight glass on the right shows the positive results *after* installation.

TIP 5: Get Tough on Varnish

Combining a varnish removal process with the Offline Filter system maximizes your ability to remove varnish from oil.

Date:	01/17/2013		12/5/2012			10/11/2012		
Lab #:	937125		921848			904550		
MPC VALUE: (4)			MPC VALUE: 26			MPC VALUE: 54		
L	a	b	L	a	b	L	a	b
11	-10	-1	25	0	8	54	0	9

Membrane Patch Colorimetry Results:

The MPC color value of 12 is below the alarm limit of 23 and is considered normal.

Real world results showing how effective the Offline Filter system with Varnish Removal capability is at mitigating varnish.

TIP 6: Beef Up for Extreme Environments

Severe conditions call for a heavy-duty design. Hydraulic and lube oil on mobile machinery, especially within the mining industry such as excavators, dump trucks, and drilling rigs can be a real challenge.

Beef Up the Offline Filter system with shock absorbers, dust and water-proof motors, and other features that will provide reliable service and cleaner oil.

A Heavy-Duty Offline Filter system ready to tackle the toughest environments.

TIP 7: Unleash Your Oil Data with Remote Monitoring

Combining condition monitoring technology with the Offline Filter system allows you to gather a wealth of data from your oil and machine.

- Unattended oil analysis
- Real-time analysis
- Computer interface with history storage

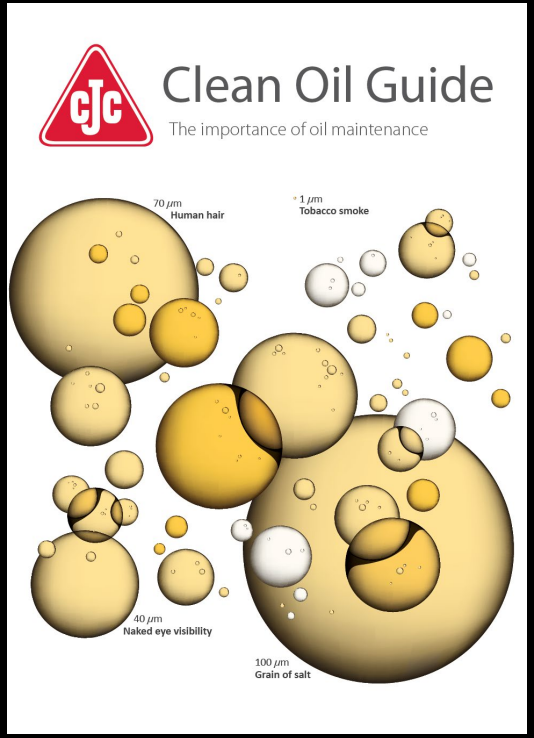
An Offline Filter system combined with an online particle counter provides valuable data for remote monitoring.

Get Started: Takeaways to Apply Today

- Fluid contamination control targets the primary cause of wear and lubricant failure, forming the central strategy of a proactive maintenance program.
- Offline Filters provide a simple and low-cost tool to reduce wear-related failures.
- Focus on keeping oil clean with a high dirt-loading capacity for a lower total cost of ownership.
- Combine other technologies with the Offline Filter system to target water, varnish, and handle severe environments.

Real world results showing how effective the Offline Filter is at removing water in gear oil.

The One-Stop Shop for Cleaner Oil



C.C. Jensen's Clean Oil Guide is the ultimate resource for everything you need to know about how to deliver a world-class contamination control strategy that produces results.

DOWNLOAD the Clean Oil Guide

C.C.JENSEN

C.C.JENSEN - the global leader in oil maintenance with more than 60 years of experience - designs and manufactures CJC® Offline Oil Filtration solutions for the removal of particles, water, acid and varnish from hydraulic oils, lube oils, gear oils, and diesel fuels.

Our CJC® Filter Inserts are made of 100% natural cellulose fibers from sustainable resources: No metal, no plastics, and no chemicals.

Find your system and contact us, so we can support you in selecting an optimum solution for your best long-term investment ever, through a professional partnership.