

Ultra-fine Filtration with Water Removal

For all types of Diesel Engine Oil Applications



Diesel Applications

Oil Bypass Filtration for Diesel Engine Applications

- ✓ Prolongs oil with operation safety
- ✓ Minimizes engine wear and prolongs component life
- ✓ Reduces new-unused oil and full-flow filter purchases
- ✓ Reduces waste oil and waste oil disposal costs
- ✓ Reduces carbon footprint
- ✓ 1 Micron Filtration

OIL RECYCLING
TECHNOLOGIES™



Extending Oil Life with Advanced Contamination Control

Oil changes are not optional—they are necessary due to contamination and operating conditions. Engines function in diverse environments under varying workloads, leading to different contamination rates. This is why manufacturers provide only recommended oil change intervals rather than fixed schedules.

With affordable oil analysis now widely available, traditional oil change practices have evolved. Instead of relying solely on prescribed intervals, preventative maintenance programs use oil sampling to track contamination, oil condition, and wear trends—helping identify potential issues before they escalate.

More importantly, oil analysis provides critical insights into additive package health and contamination levels. Combined with advanced filtration, this enables extended oil service intervals, reduced engine wear, cost savings, and lower environmental impact.

Oil does not degrade, it gets contaminated, and additives deplete. Why does an OEM recommend a 250-hour oil change for an engine with 70 liters of oil but 500 hours for the same engine with 140 liters? With twice the oil volume, it takes twice as long for the oil to get dirty and oil additives to deplete. We remove it as it enters the oil, recycling the oil while the engine is in use.

Oil should be changed based on contamination, not arbitrary intervals. Keeping acidity low, viscosity stable, and particulates minimal extends oil life without harming performance. Oil Recycling Technologies™ (ORT) remove contaminants and preserve additives, allowing longer oil change intervals, lower maintenance costs, and a reduced environmental impact.



Contamination Management



A standard oil and filter aren't enough to extend engine life or oil change intervals. Post-2009 engines, built for stricter emissions standards, run hotter and accumulate more contaminants, requiring advanced filtration.

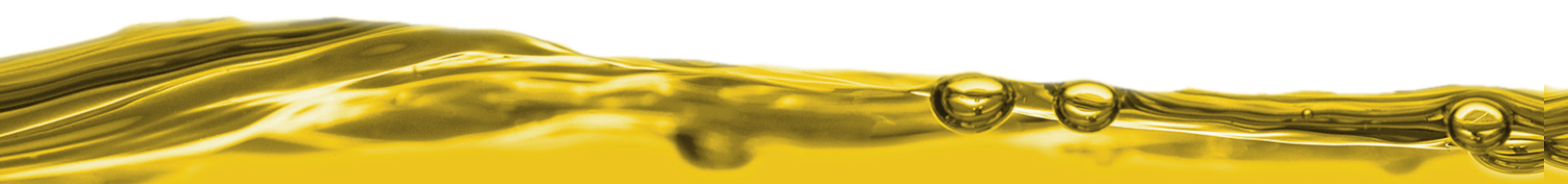
Standard oil filters use a full-flow system, meaning all oil passes through in a single cycle. Rated at 25 microns, they prioritize flow rate over capturing ultra-fine contaminants (1-15 microns) like soot and carbon—key culprits of engine wear.

Full-flow filters also fail to remove moisture from combustion, leading to acid formation, additive depletion, and corrosion. Without advanced filtration, oil stays dirty, wear increases, and service life shortens.

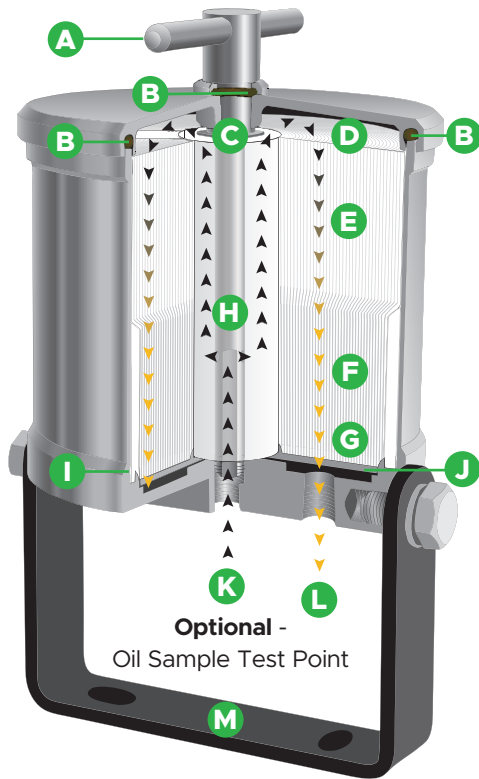
Oil Recycling Technologies™ (ORT) polishes small oil volumes at low flow rates, filtering to 1 micron using a multi-ply axial-flow cellulose element. This removes ultra-fine contaminants and moisture full-flow filters miss.

With a four-stage filtration system, ORT's innovative replacement elements meet contamination challenges in modern engines with advanced emissions controls, including Exhaust Gas Recirculators (EGRs), Diesel Particulate Filters (DPFs), and ACERT technology.

Due to superior contaminant removal, ORT improves cleanliness, reduces wear, and extends life, even in older engines.



How to remove contaminants and keep oil clean



How It Works

Pressurized oil enters the base of the filter unit, flowing up through the core of the ORT element, then down through a four-stage micro-depth filtration process, polishing the oil to 1 micron. The cleaned oil is discharged and returned to the reservoir. Replace the ORT element regularly, based on engine contamination levels and operating conditions. Align oil change intervals with customer targets, and use oil sample analysis to monitor contamination and safely extend drain intervals.

- A Stainless Steel T-handle** - permits easy lid removal and element replacement
- B O-Ring**
- C Lid Ejection System** - automatically separates the lid from the canister
- D Stage 1 - Surface Filtration**
- E Stage 2 - Depth Filtration**
- F Stage 3 - Pressured Micro-Depth Filtration**
- G Stage 4 - Migrating Particle Filtration**
- H Oil Spike Suppressor**
- I Machine Sealed Edges**
- J Element Support Grill**
- K Inlet Pressure Port**
- L Outlet Drain Port**
- M Stainless Steel Universal Mounting Bracket**

The Secret - Our Element

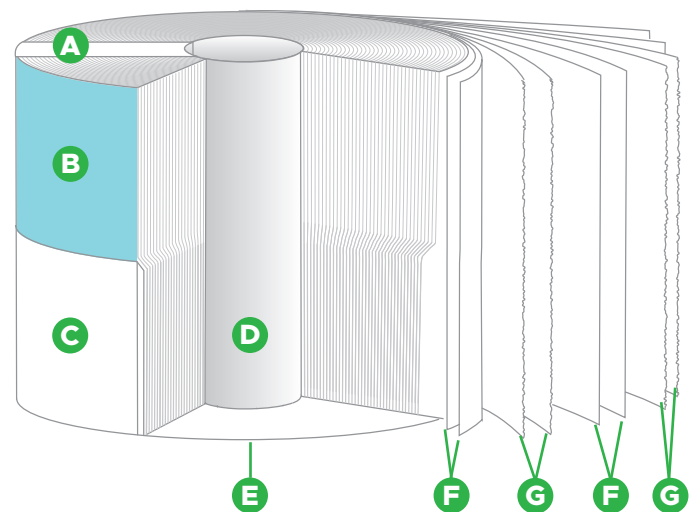
Engineered with a precision-wound, multi-ply axial-flow cellulose element, ORT elements exceed modern diesel engine demands. Vacuum-sealed for contaminant-free storage, they come with a plastic disposal bag for easy, hygienic replacement, and are tailored to various viscosities and fluid types for broad industrial compatibility.

- A Fabric Band** - element extraction strap, for easy removal
- B Course Sleeve** - protects upper stage of element
- C Crimped Outer Shell** - creates a dense micro filter media
- D Inner Core**
- E Non-Woven Filter Disc**
- F Standard Crepe Filter Paper**
- G Cross Crepe Filter Paper**

Healthy Oil - No Problem

Oil Recycling Technologies™ elements remove 99.97% of water from oil, reducing acid formation, maintaining high alkalinity and TBN, and preventing additive depletion, oxidation, and sludge buildup, thereby extending equipment life and oil change intervals.

The element is vacuum packed



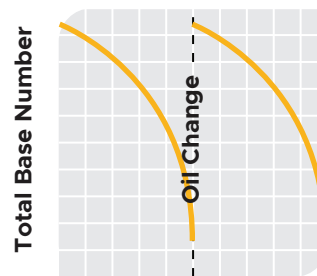
Prolonging oil with operational safety

The Impact of Contaminated Oil & ORT's Solution

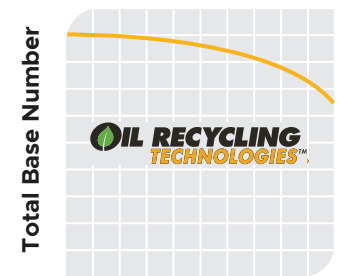
Contaminated oil accelerates acid formation, corrosion, sludge buildup, and viscosity breakdown, leading to overheating, poor circulation, and rapid additive depletion. ORT removes ultra-fine contaminants and moisture missed by conventional filters, preserving oil integrity, reducing costs, and extending equipment life.

Acid Formation

- A Typical Filter** - The need for constant neutralization of acids formed in the engine is the major factor for TBN breakdown.
- B Oil Recycling Technologies™** - We have the ability to constantly remove water creates a virtually acid free engine significantly reducing the breakdown of the additives, minimizing corrosive action & mechanical wear, and dramatically reducing the need to change the oil.



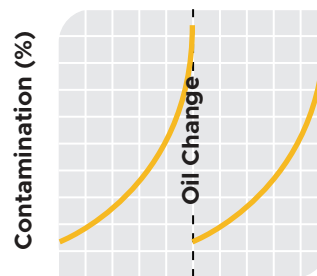
A Distance (km)



B Distance (km)

Particle Build-up

- C Typical Filter** - The constant build-up of fine particles held in suspension by the additives creates the need for regular oil changes.
- D Oil Recycling Technologies™** - The constant cleaning action prevents any particle build-up and creates a much cleaner engine, dramatically reducing oil changes.



C Distance (km)

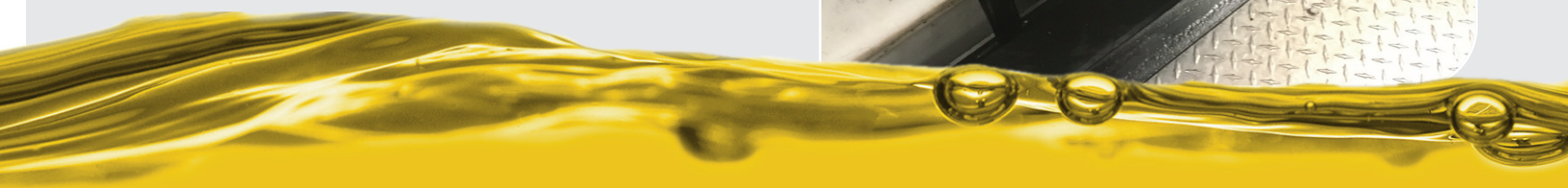


D Distance (km)

Easy Installation & Maintenance

The Oil Recycling Technologies™ are designed for simple installation on virtually any engine. Oil supply can be sourced from a pressure point along the oil gallery, oil pressure switch, or oil filter head, with polished oil returned to the reservoir.

Operating at a low flow rate, ORT does not interfere with oil pressure or engine performance. Instead of replacing the full-flow filtration system, it works alongside it, continuously removing ultra-fine contaminants and moisture that standard filters miss. This process prolongs oil life, preserves additive integrity, and enhances engine reliability, ensuring extended maintenance intervals and improved operational safety.

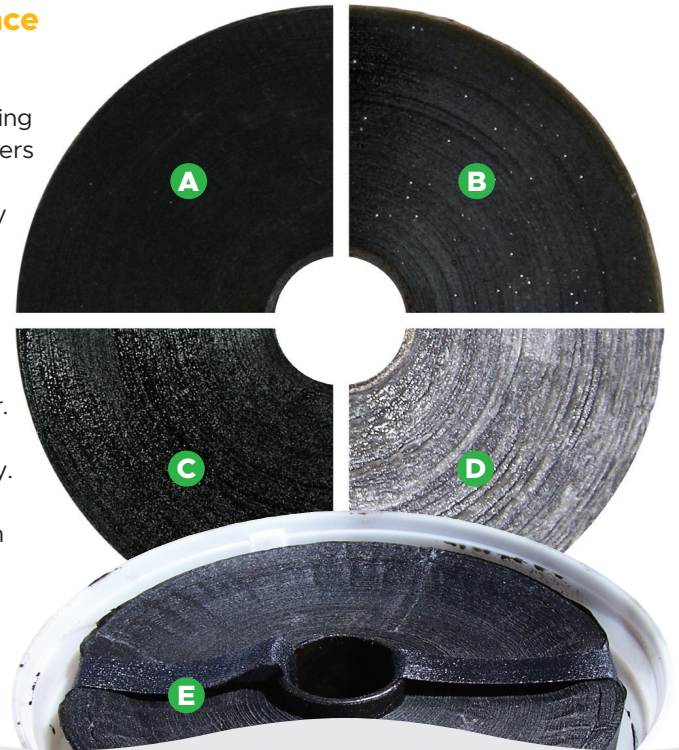


Reduce Contamination, Improve Reliability & Asset Management

A Proactive (not reactive) Approach to Maintenance

The traditional reactive maintenance model is being replaced by a proactive approach—preventing issues before they arise. Oil Recycling Technologies™ (ORT) reduces long-term maintenance costs and offers immediate savings on oil, filters, downtime, and waste oil disposal. This ensures a quick return on investment while improving efficiency and asset lifespan. Additionally, the ORT element's condition provides diagnostic insights for early detection of common issues, supporting preventative maintenance and optimizing performance.

- A Normal Element** - Changed at proper interval, element removed high concentrations of soot/carbon, indicating normal engine wear.
- B Metal Dust Particles Present** - Indicating engine overload. Wear is taking place in metal component. Investigate source immediately.
- C Soot/Carbon Overload** - Higher than normal levels accumulated indicating possible overheating, engine overload, coolant system malfunction, or due to extreme element extension intervals.
- D Fuel Dilution** - Element will become dry and turn grey in color, indicating fuel is present in the oil.
- E Coolant Leak** - Element is spongy and shrunken, indicating water is present in the oil.



Benefits

Implementing ORT enhances mechanical efficiency, operational reliability, and cost savings while prolonging oil life and reducing waste.

- ◆ **Extends Oil Life & Safety** – Prevents oxidation, viscosity breakdown, and prolongs service intervals.
- ◆ **Enhances Diagnostics & Reliability** – Detects leaks, fuel dilution, and improves circulation.
- ◆ **Minimizes Wear & Damage** – Reduces abrasion, corrosion, and sludge buildup.
- ◆ **Reduces Downtime & Replacements** – Prevents failures and extends component life.
- ◆ **Optimizes Maintenance & Costs** – Cuts oil/filter use, downtime, and disposal costs.

"We do not inherit the earth from our parents, we borrow it from our children" - Aldo Leopold



Helping the Environment

The Earth's finite supply of non-renewable resources is depleting at an accelerated rate, making sustainable practices essential. With increasing regulatory pressures and the adoption of ISO 14001 environmental management standards, industries are expected to minimize their environmental footprint.



The Diesel Engines Play a Vital Role in Industry

Diesel engines are essential across primary and secondary industries, powering heavy machinery, transportation, and critical infrastructure worldwide. They play a key role in sectors such as mining, construction, agriculture, forestry, oil and gas, power generation, marine, and waste management, ensuring efficient operations in demanding environments.

Key Applications of Diesel Engines

- ◆ **Heavy-Duty Transportation** – Trucks, buses, and freight carriers.
- ◆ **Construction & Mining Equipment** – Excavators, rock trucks, wheel loaders, and cranes.
- ◆ **Power Generation** – Industrial generators and backup power systems.
- ◆ **Marine & Rail Systems** – Fishing vessels, cargo ships, and railway locomotives.
- ◆ **Agricultural & Forestry Machinery** – Tractors, harvesters, and logging equipment.
- ◆ **Industrial & Warehouse Operations** – Forklifts, material handlers, and processing equipment.



Given their widespread use, optimizing diesel engine performance through efficient filtration and oil management is crucial for reducing maintenance costs, improving reliability, and minimizing environmental impact.

Model	ORT-FULP-100	ORT-FULP-200	ORT-FULP-300
Oil Reservoir Capacity	15 l *3.96 gal	45 l *11.89 gal	90 l *23.78 gal
Flow Rates	1.5 l/min *0.40 gal/min	2.2 l/min *0.58 gal/min	3.8 l/min *1 gal/min

Oil Recycling Technologies provides a Limited Life time warranty to the original purchaser for defects in workmanship and materials of the Filter canister only. Warranty is not transferable. Hose, adapters, and reusable ends are warranted by the original manufacturer. The use of a Oil Recycling Technologies does not affect original manufacture warranty. As technical advancements take place, product specifications may be subject to change.



ORT-FULP-200 ORT-FULP-300 ORT-FULP-100



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