

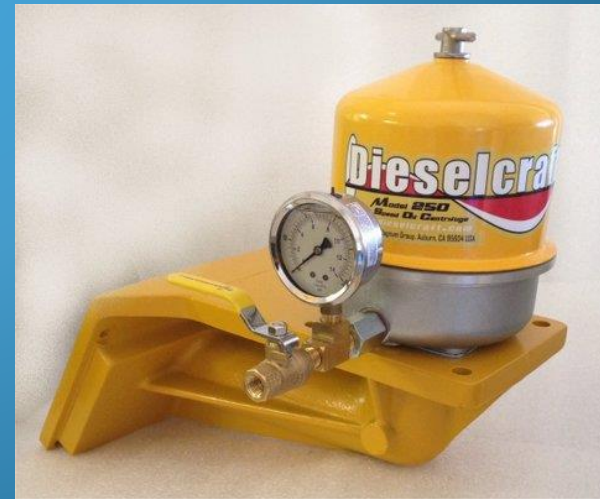
OC Centrifuges

Filter Less Oil Centrifuges

Presentation Provided by Diesel Filtration Products LLC for
Diesel craft Fluid Engineering

Dieseldcraft Centrifuges

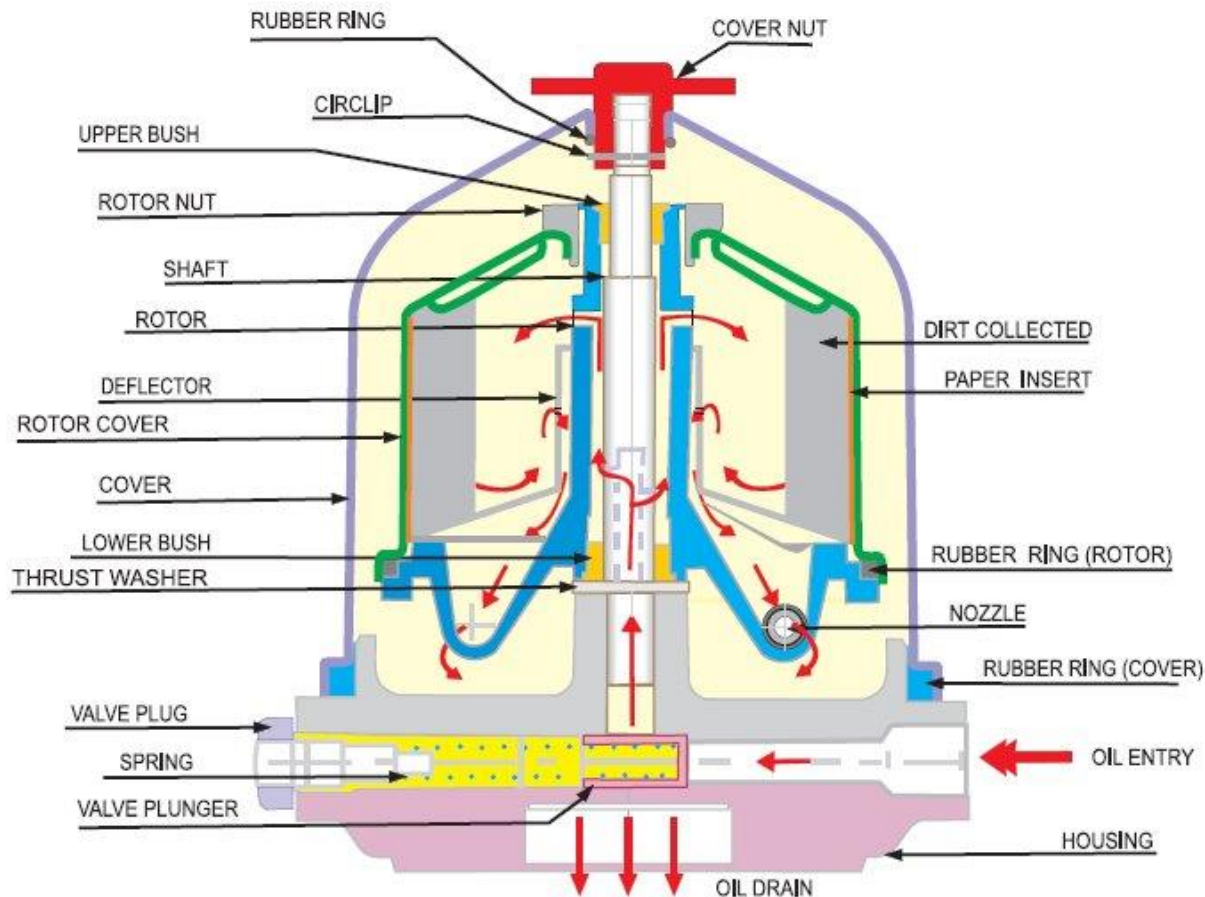
The Economical Solution To Removing SOOT & Other Contaminates to < 1 Micron



OC Key Operating Parameters

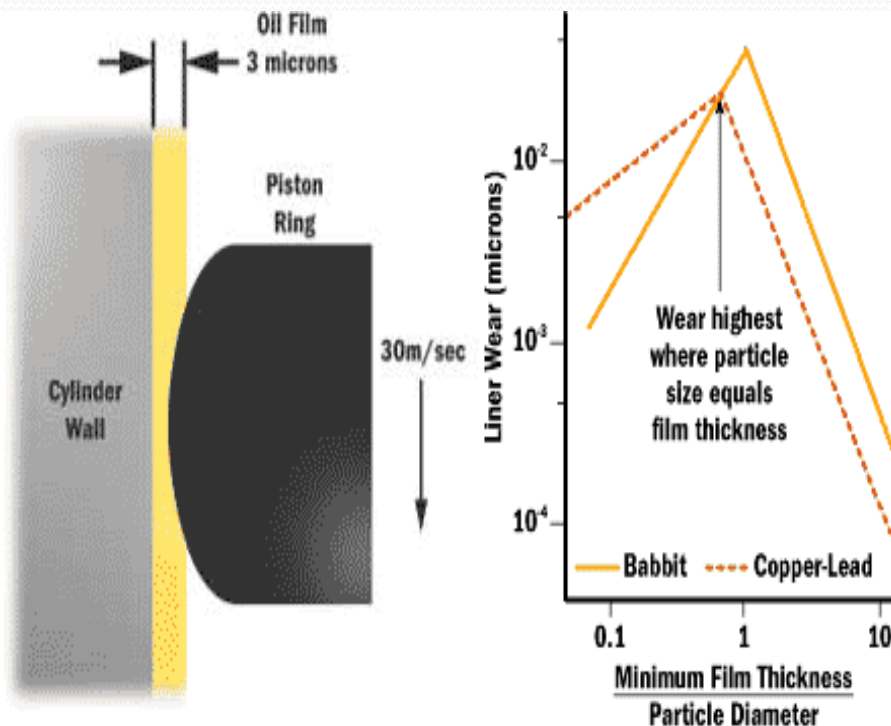
- OC operates by engine oil pressure: 30 -90 psi
- Every 10 psi = 1,000 rpm
- < 30 psi - oil flows, OC idle, no blockage
- Contaminates – collect in rotor housing
- Removal of Contaminates – change dirty rotor with clean rotor - 10 -15 minutes – clean dirty rotor and reuse.
- Engine running OK
- Install on engine or remote
- No filters
- Increase life of full – flow filters

OC Centrifuge Flow



Soot – The Engine Killer

- Fact: When “particle contaminates” like soot and dirt build up so that the mass is approaching the 3 micron oil film thickness, it will remove the oil protection function and attack the metal surfaces.



Diesel Engine Oil Film Thickness	
Component	Oil Film Thickness (microns)
Ring-to cylinder	3.0 - 7
Rod bearings	0.5 - 20
Main shaft bearings	0.8 - 50
Turbocharger bearings	0.5 - 20
Piston pin bushing	0.5 - 15
Valve train	0 - 1.0
Gearing	0 - 1.5

Figure 2. Particle-Induced Wear is Greatest when the Particle Sizes are in the Same Range as the Oil Film Thickness

Soot – Filtration Facts

- Soot enters an engine's lubrication oil at the rate of .0048 oz for every gallon of diesel fuel burned?
Burn 210 gallons you get 1 oz of soot in the oil
- SAE Study – "Doubling Oil Drain Intervals - The Reality of Centrifugal Bypass Filtration". During test period 1 pound of soot was removed from lube oil ever 700 hours. The minimal amount of debris collected by the full-flow screen can be attributed to the ability of the centrifuge to remove the bulk of the contaminants generated or ingested by the engine. (Copy of study available)
- No by-pass filter element system can remove more than 25% of soot (CA EPA Study)

Engines Killers = Oil Contamination

- **Soot.** Major engine manufacturers have identified soot and "black sludge" deposition as a major cause for engine failure. Soot enters the lubricant with exhaust gas in the form of blow-by or it is deposited on cylinder walls and subsequently scraped off by the rings and deposited into the oil. The soot is a harsh abrasive, like sandpaper, that accelerates wear in cylinder liners, rings, piston skirts, journal bearings and valve trains.
- **Dirt.** Oil is most often contaminated by dirt when there are issues with the air intake system. As a result, upper end components - pistons, liners, rings and valves - begin to wear first.
- **Fuel Dilution.** Fuel dilution is the amount of raw, unburned fuel circulating within the engine this will decrease an engine oil's viscosity and lubricity, it can alter the performance of anti-wear additives .
- **Coolant.** The coolant will attack the softer metals of the engine such as the copper and lead in main and rod bearings.
- **Glycol.** This reacts with oil additives causing precipitation. Glycol contamination substantially increases oil viscosity which impairs lubrication and oil cooling.

Shell & OC Centrifuge Case Study

At this particular generation facility, three Caterpillar 3520 engines, fueled by landfill gas, are used to generate power. A centrifugal filter has been added to the Number 1 engine at this location to aid in contamination control. Due to the nature of the fuel source, that being landfill gas, oil contamination and degradation is a primary concern for the life of the engine.



Shell Oil Analysis - OC Effective

During the months of June and July, deposits were observed to be building up in the centrifugal filter housing at elevated levels. **In just 15 days of operation**, after the housing was cleaned, a significant amount of deposit had collected and required cleaning again. This deposit was a solid, oily substance, similar to that of charcoal.



CAT 3516 – Tugboat 12/2015

Dieselcraft OC 250 with CentriMount –Clean Oil Returns
Directly To Engine Oil Supply – No Return Hose



DIESEL-CRAFT MODEL 250 OIL CENTRIFUGE
FOR CAT 3500 ENGINES



CUMMINS OC 50 INSTALLS



DIESELCRAFT OC-50 ON CUMMINS QST-30



Cummins KTA50G Genset
with Dieselcraft OC-50 Direct Mount Oil Centrifuges

OC 50 F/V MIDNIGHT SUN 7 YRS



CAT 3412 Oil Change Interval 2000 hrs. (Normal 500 hrs)

OC 20 – Engines < 500 HP

Ideal for auxiliary engines – generators, pump engines. Easy installation with CentriMount cast mount. Clean oil returns to engine oil supply via internal flow channel. No return hoses!



Typical Installations

