

Oil Filtration Product Range





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Oil Filtration

More than 3/4 of all problems in fluid systems can be traced back to contaminated oil!*

Oil cleanliness is critical to the reliability of your machinery. As technology advances, the demands placed on a lubricant are ever-increasing: pressures and temperatures are higher, reservoir sizes are smaller and component tolerances are closer.

CARDEV offline & by-pass filtration is capable of maintaining oil in a "cleaner than new" condition, extending oil life, reducing component wear and increasing system reliability. We work predominantly with hydraulic and engine oil but the technology is also suitable for transformer oil, gear oil and neat cutting oil. By changing to a different filter element metalworking/water based fluids can also be filtered.

Filtration Types



Bypass Filtration

Permanently installed filtration using the flow and pressure of the system that is being filtered.

Benefits of Bypass Filtration

- Constant filtration whilst the system is working - clean the entire system, not just the oil in the reservoir.
- Fit and forget -
Change filter element as part of routine servicing.



Offline Filtration

Mobile or permanently installed filtration systems that work independently of the system being filtered, relying on integrated pumps to provide pressure and flow.

Benefits of Offline Filtration

- Filtration even when the system is inactive – ideal for systems that operate infrequently – cranes, lock gates etc.
- One system can service an entire facility.

Why Not In-line Filtration?

With in-line filtration there is always a trade-off between fineness of filtration and the flow/pressures of the machine. This means that in-line filtration typically serves only to protect equipment from very large particles and immediate, catastrophic failure.

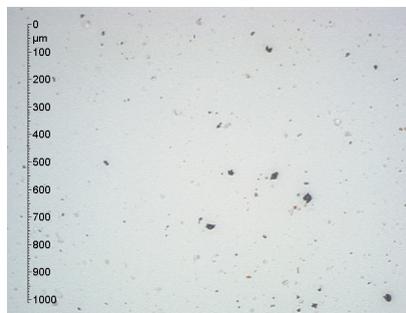
Offline/By-pass filtration operates on the principle of SLOW and LOW – slow flow rates and low pressures (relative to the system as a whole) to allow very fine levels of filtration to be achieved.

Understanding Oil Cleanliness Levels

Code ISO 4406	Number of particles/100ml			NAS 1638	
	>4µm	>6µm	>14µm		
23/21/18	8.000.000	2.000.000	250.000	12	Very contaminated - Breakdowns inescapable
22/20/18	4.000.000	1.000.000	250.000	-	
22/20/17	4.000.000	1.000.000	130.000	11	
22/20/16	4.000.000	1.000.000	64.000	-	Minimum required cleanliness class for high pressure-, servo valve hydraulic systems, new/fresh oil DIN51524
21/19/16	2.000.000	500.000	64.000	10	
20/18/15	1.000.000	250.000	32.000	9	
19/17/14	500.000	130.000	16.000	8	
18/16/13	250.000	64.000	8.000	7	
17/15/12	130.000	32.000	4.000	6	
16/14/12	64.000	16.000	4.000	-	(Achievable) result after CARDEV Microfiltration
16/14/11	64.000	6.000	2.000	5	
15/13/10	32.000	8.000	1.000	4	
14/12/9	16.000	4.000	500	3	
13/11/8	8.000	2.000	250	2	
12/10/8	4.000	1.000	250	-	
12/10/7	4.000	1.000	130	1	
12/10/6	4.000	1.000	64	-	



NAS Class 3



NAS Class 8



NAS Class 12



High Pressure Hydraulic Filtration (<350 Bar)

HDU-H300 Bypass Oil Filter



The HDU-H300 is a by-pass filter suitable for systems of up to 200 litres. Max feed pressure 300 Bar.



SDU-H350BM2 Bypass Oil Filter



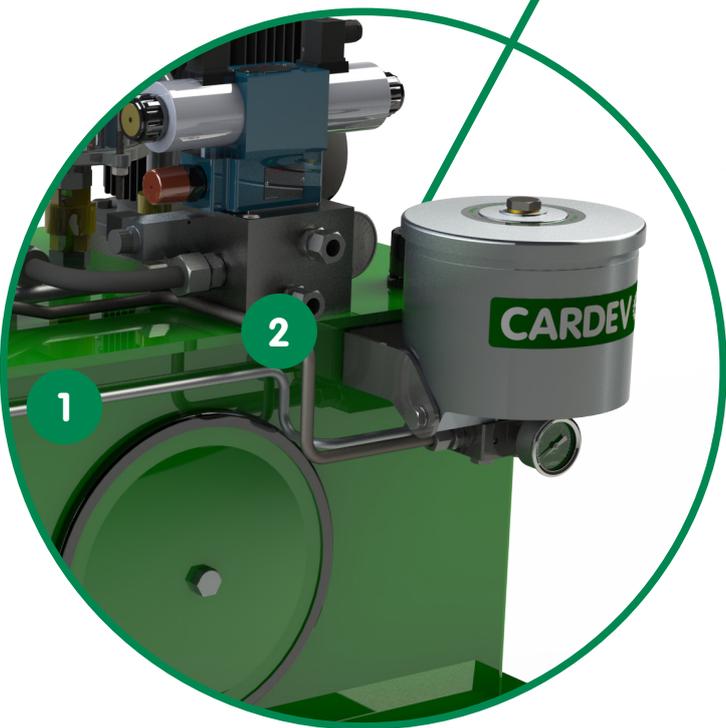
The CARDEV SDU-H350BM2 is a by-pass filter suitable for systems of up to 400 litres. Max feed pressure 350 Bar. Flow rate restricted to 2 l/m.



SDU-H350RK-TWIN Bypass Oil Filter

By-pass filter suitable for systems of up to 1000 litres. Max feed pressure 350 Bar. Flow rate restricted to 4 l/m.





1. Pressure feed taken from the in-line/feed to the oil cooler (permanent flow, constant pressure @ ~25 bar) using a T-connector and 1/4" high pressure rated hydraulic hose.
2. Short return line from outlet of SDU-H350BM2 to a dummy plug of the hydraulic tank (below oil level to prevent foaming) using 3/8" low pressure rated hydraulic hose.

Bypass Filtration For Larger Systems

2S-350-C4

Bypass Oil Filter

Fixed by-pass filter comprising 2x SDU filter housing. Recommended for systems up to 1000 litres. Max feed pressure 350 Bar.



4S-350-C8

Bypass Oil Filter

Fixed by-pass filter comprising 4x SDU filter housing. Recommended for systems up to 3000 litres. Max feed pressure 350 Bar.



6S-350-C12

Bypass Oil Filter

Fixed by-pass filter comprising 6x SDU filter housing. Recommended for systems over 3000 litres. Max feed pressure 350 Bar.





O&K RH 120 fitted with 4S-350-C8

Low Pressure Hydraulic Filtration (<8 Bar)



LDU-H8
Bypass Oil Filter



HDU-H8
Bypass Oil Filter



SDU-H8
Bypass Oil Filter



Engine Oil Filtration



LDU-M8
Bypass Oil Filter

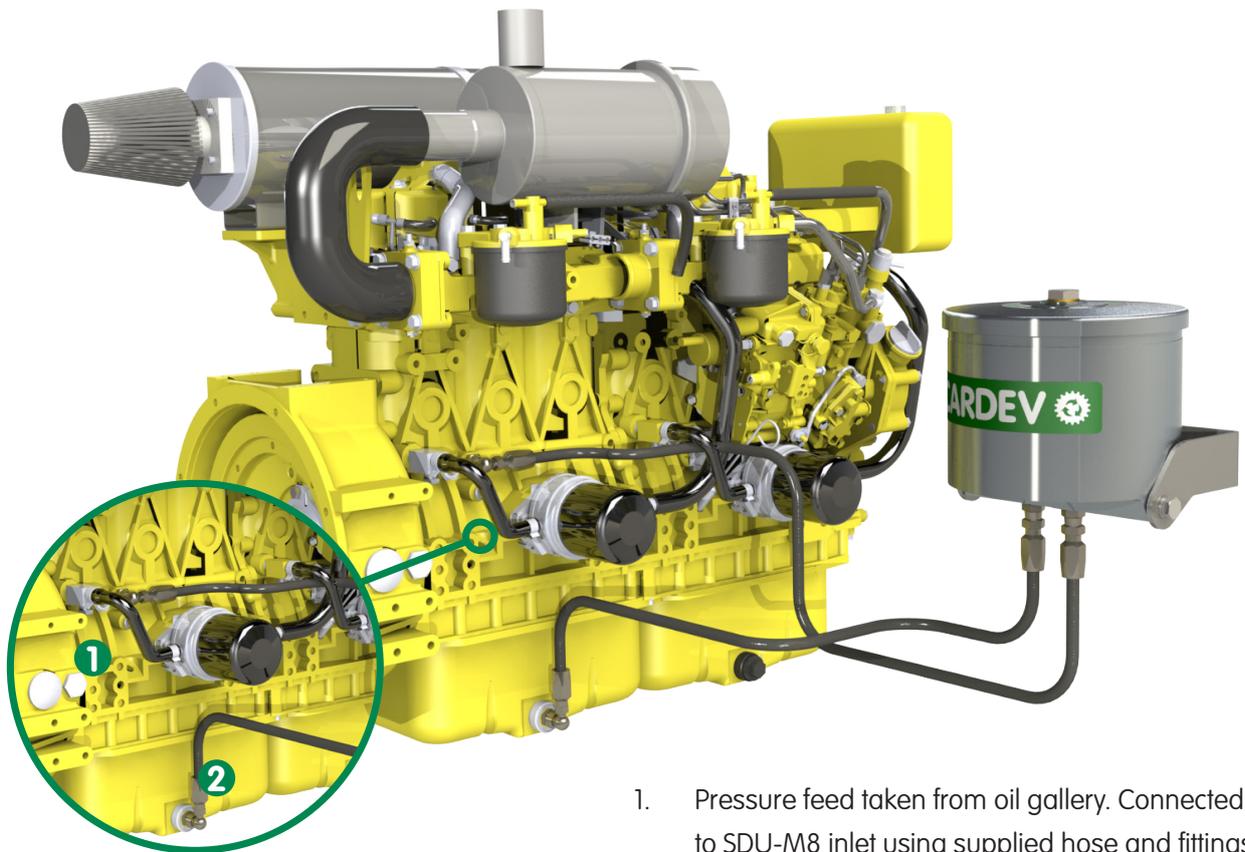


HDU-M8
Bypass Oil Filter



SDU-M8
Bypass Oil Filter





1. Pressure feed taken from oil gallery. Connected to SDU-M8 inlet using supplied hose and fittings.
2. Short return line from outlet of SDU-M8 to sump.



KOMATSU excavator fitted with SDU H8



Bypass Oil Filtration For Fixed Tank Installation



Designed to be fitted flush in the top of a tank.

HDU-H8-FL
Bypass Oil Filter



By-pass filter suitable for systems of up to 200 litres. Max feed pressure 6 Bar.



HDU-H300-FL
Bypass Oil Filter



By-pass filter suitable for systems of up to 200 litres. Max feed pressure 300 Bar. Flow rate restricted to 2 l/m.



SDU-H8-FL
Bypass Oil Filter



By-pass filter suitable for systems of up to 400 litres. Max feed pressure 6 Bar.

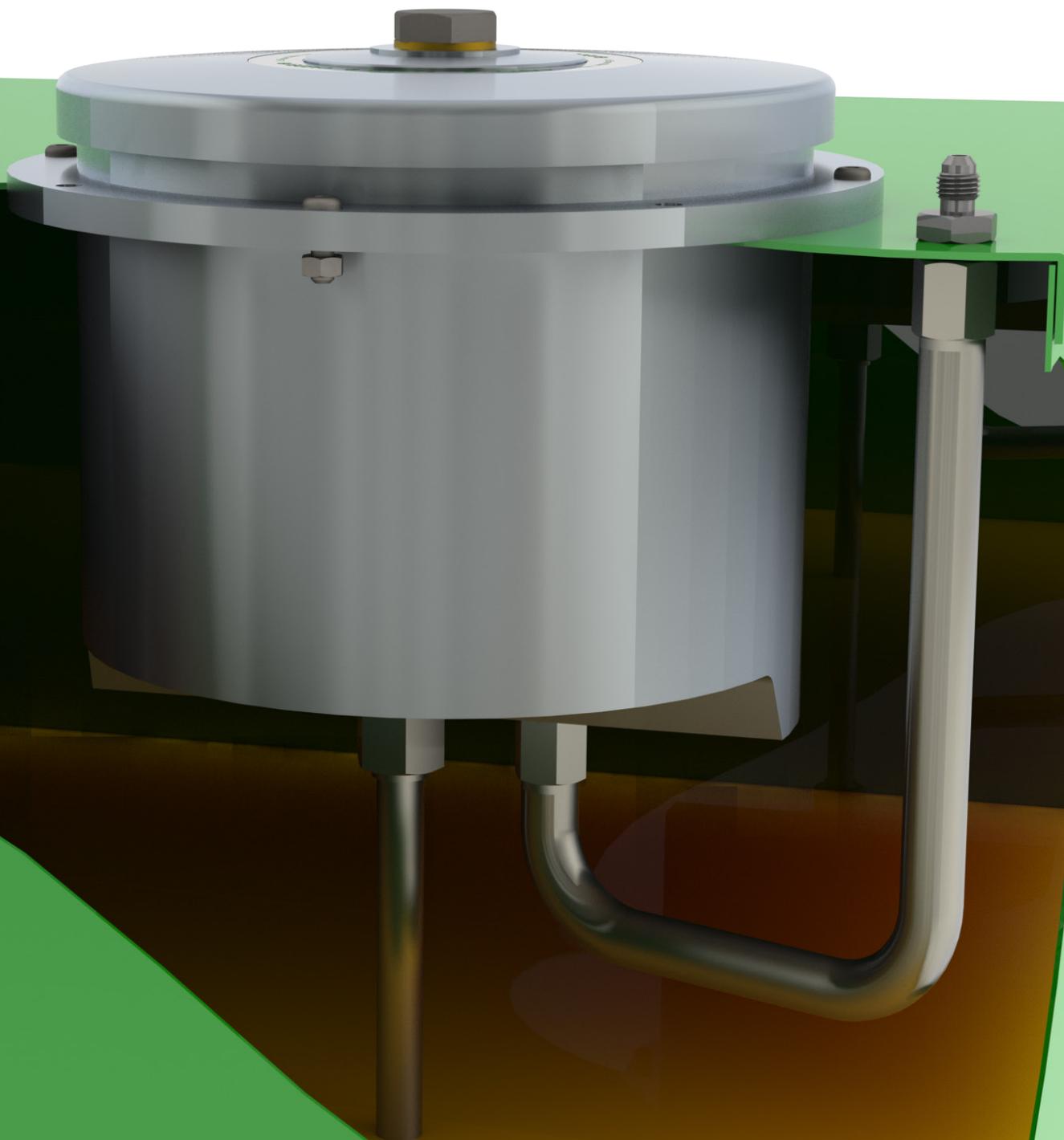


SDU-H350BM2-FL
Bypass Oil Filter



By-pass filter suitable for systems of up to 400 litres. Max feed pressure 350 Bar. Flow rate restricted to 2 l/m.





SDU-H8FL
installation example

Subsea/Offshore Filtration

A range of specialist filtration equipment designed specifically for use in Subsea and Offshore environments. Particles (including dissolved salt from sea water) and moisture are removed leaving oil "cleaner than new"*, whilst reducing downtime and component wear.



SDU-H8UW-S

Subsea Bypass Oil Filter



By-pass filter suitable for offshore installation on equipment such as HPUs and winches. Max feed pressure 6 Bar.



SDU-H350UW-S

Subsea Bypass Oil Filter



By-pass filter suitable for installation on ROV's, TMS and winches. Max feed pressure 350 Bar.



Work class ROV fitted with
2x SDU-H350UW-S



Offline Filtration Systems

Mobile or permanently installed offline filtration systems that work independently of the system being filtered, using integrated pumps to provide pressure and flow. Particles and moisture are removed leaving oil "cleaner than new"*, reducing downtime and component wear.

Mobile Offline Filtration Systems

1S
Static Offline
Filtration System



The 1S is ideal for restricted-access applications where the system may need carrying by hand. Simple control, over pressure protection, powder coated frame.

2S-500B
Mobile Offline
Filtration System



Simple control, high pressure protection, powder coated frame.

2S-500E
Mobile Offline
Filtration System



Stainless steel construction with intelligent PLC control and filter element change timer.



See page 22 for more information



4S-B
Mobile Offline
Filtration System

High / low pressure cut-off and filter element change timer. Mixed powder coated / stainless steel frame.

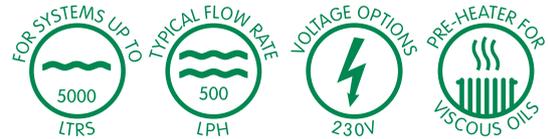


4S-E
Mobile Offline
Filtration System

PLC controlled and pre-heater for viscous oils. Automatic pressure adjustment for maximum efficiency.



Filter element change timer. Mixed powder coated/stainless steel frame.



6S-B
Mobile Offline
Filtration System

High / low pressure cut-off and filter element change timer. Mixed powder coated / stainless steel frame.



6S-E
Mobile Offline
Filtration System

PLC controlled and pre-heater for viscous oils. Automatic pressure adjustment for maximum efficiency.



Filter element change timer. Mixed powder coated / stainless steel frame.



Static Offline Filtration Systems

1S
Static Offline
Filtration System



The 1S is ideal for restricted-access applications where the system may need carrying by hand. Simple control, over pressure protection, powder coated frame.

2S-500BS
Static Offline
Filtration System



The 2S-500BS Offline Static system for permanent / semi-permanent installation. Simple control, high pressure protection, powder coated frame.

4S-RS
Static Offline
Filtration System



Static filtration system. Simple control, high pressure protection, powder coated frame. Flow rate 500 l/hr**



2S-24V
Static Offline
Filtration System



Temporary or permanent installation on plant with 12/24V DC power. Offline installation taking feed and return from Hydraulic reservoir / fuel tank.



See page 22 for more information





15 Offline filtration system fitted to hydraulic press

CARDEV Filter Elements

To ensure maximum performance from your CARDEV offline and by-pass filtration equipment, always observe the advice on filter element changes in your user guide. The [CARDEV SDFC](#), [CARDEV HDFC-N](#) and [CARDEV LDFC](#) are designed to work with oil-based fluids, removing moisture and particles, leaving oil cleaner than new*. The [CARDEV SDFC-P](#) is designed to work with water-based fluids, removing particles and foreign oil content.

CARDEV SDFC Depth Filter Element



The CARDEV SDFC filter element can be used on all oil-based fluids such as hydraulic, engine, gearbox oils and diesel fuels.

CARDEV SDFC-P Polypropylene Depth Filter Element



The CARDEV SDFC-P filter element can be used on all water based mineral, semi-synthetic and synthetic coolants/lubricants such as metal working fluids.

CARDEV LDFC Depth Filter Element



The CARDEV LDFC filter element can be used on all oil-based fluids such as hydraulic, engine, gearbox oils and diesel fuels.

CARDEV HDFC-N Depth Filter Element



The CARDEV HDFC-N filter element can be used on all oil-based fluids such as hydraulic, engine, gearbox oils and diesel fuels.

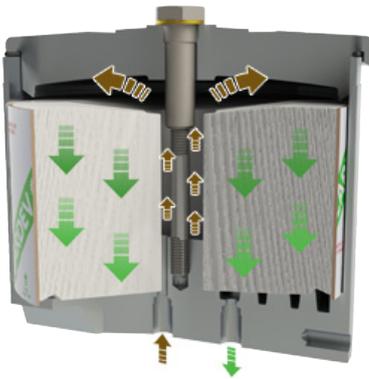


SDFC Performance

The CARDEV SDFC is a depth filter element made of long fibre cellulose, with a full diameter polyester protection disc. The element can be used on all oil-based fluids such as hydraulic, engine, gearbox oils and diesel fuels.

The filter element acts by absorbing water and adsorbing particles in a continuous recycling process. The long cellulose fibres absorb water (both free and dissolved) formed either through the combustion process or by condensation / contamination. Larger oil molecules are forced to pass between the tight windings of the element.

Free and dissolved water is removed down to < 50ppm (0.005%), inhibiting production of acids (hydrolysis).



As the oil passes through the element, minute particles of carbon, wear metals and silicon are extracted from the oil by adhering to the many surfaces of the filter.

By continuously removing water and particle contamination the ageing effect of such catalysts is minimised. This enables the oil life to be extended whilst maintaining the oil within the specification laid down by the OEM.

Oil life extension is dependent on the operating conditions and maintenance programme applicable to the machine.

We recommend regular oil analysis during extended drain intervals.

The CARDEV SDFC has a 4 micron absolute rating (ISO 16889, 1999). In use particles of 1 micron or less in size are removed, achieving oil cleanliness levels which are "better than new" – as low as 13/11/8 (ISO 4406); Class 2 (NAS 1638).

IMPORTANT NOTE - ADDITIVES

In modern lubricants additives are dissolved in the base oil. Additive levels will therefore not be reduced by the CARDEV filter element. By removing contaminants that could otherwise act as catalysts, additive and oil life is extended.

Particles Removed



Oil cleanliness maintained at better than new levels
Down to 13/11/8 (ISO 4406: 1999) -
Class 2 (NAS 1638)

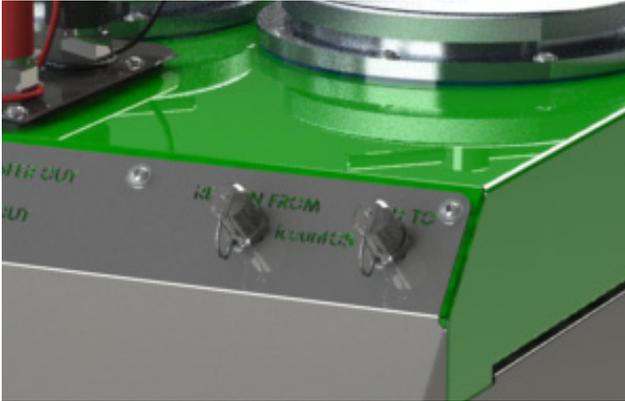
Water Removed



Removes free and dissolved water down to < 50 ppm (0.005%)

Using A Portable Particle Counter With Offline Filtration

Each system is fitted with dedicated connection points to allow easy use of the ETL ConMon iCount Oil Sampler (IOS). The IOS is capable of measuring both moisture content and cleanliness class (ISO4406:1999) and data logging thousands of results.



icountOS Portable Particle Detector

The icountOS (IOS) is an innovative solution to the challenge of measuring the quality of hydraulic oils and hydrocarbon fuels in many different applications: from renewable energy, marine and offshore, to manufacturing, mobile, agriculture, military and aerospace.

Compact, lightweight and robust, the truly portable IOS makes field analysis simple, quick and easy.



Able to sample directly from a hydraulic reservoir, barrel, vehicle fuel tank or from a high pressure online hydraulic system with the addition of a pressure reducing adaptor; the IOS is undoubtedly the most adaptable service tool available today.

The system is completely self contained, with laser detection particle counter, battery and pump plus memory with web page generator for data download storage onto any PC or laptop - combined into a single unit.

The IOS uses proven laser detection technology, which delivers precise, repeatable and consistent results, for real time detection of both particulates and moisture, down to 4 microns in size.

Just as importantly, the IOS has been developed to offer a wealth of features, combined with simplicity and ease of use, at a cost that is far lower than competing systems, and which fits within most maintenance budgets.



icountOS - WiFi Wireless Portable Particle Detector

The icountOS (IOS) wireless is an innovative solution to the challenge of measuring the quality of hydraulic oils and hydrocarbon fuels in many different applications: from renewable energy, marine and offshore, to manufacturing, mobile, agriculture, military and aerospace.

The wifi utilizes the latest technology and can be used with devices such as, iPads, smart phones and laptops, in fact any device able to connect to wifi with a browser.

Now the IOS can be controlled from your phone; switch on, switch off and save data directly via the app on your device.





ETL Fluid Experts Ltd
Environmental Technologies Group
Grimbald Crag Road Knaresborough North Yorkshire HG5 8PY
T. +44 (0)1423 522911 F. +44 (0)1423 530043 E. sales@etlfe.com
www.etlfluidexperts.com

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