

Diesel Contamination Removal

FA-ST have a range of filtration systems able to remove particulate contaminate and water emulsified or free in diesel. The units are designed to filter small fuel tanks to bulk storage tanks the table below shows the recommendations for the application of each unit.

Filtration System	Flow Rate (litres per hour)	Recommended Application
FF1H/12 Hand Carry 12 volt	Up to 600lph	Small fuel tanks up to 100 litres i.e. Canal Boats
MS1 Filtration System	Up to 400lph	Tanks up to 2000 Litres
MS2 Filtration System	Up to 500-1200lph	Tanks up to 5000 Litres
MS4 Filtration System	Up to 750-1200lph	Tanks up to 10000 Litres
MS8 Filtration System	Up to 1400-4200lph	Tanks 10000+ Litres

The filtration systems will filter particles down to 3micron removing water and particulate however other additional options are available dependent on contamination levels please see below for variations that provide additional filtration:

Product	Application
Micro-Mag Magnetic Filters	Removes Ferrous Particles Removal of ferrous particles from oil recommended for use on oils with high levels on the FW Index
Bag Filters	Removes Particulate Contaminate Removal of particulate & ferrous contamination, although these filters don't operate to the same standards as the FA-ST filters supplied with the unit, they are the ideal product for heavily contaminated diesel. Providing an additional level of filtration having a bag filter will increase the life span of other filters by removing a good amount of contamination before it gets to the other filters.
Aqua-Zorb water removal cell	Removes Free Water At the bottom of bulk tanks water builds up created by the diesel sweating. Aqua-Zorb will remove the free water from the system at a far more cost-effective rate that using filter cartridges to remove the water.
Biocide Diesel Bug Treatment	Kills & Removes Bug/Fungus/Mould Once "diesel bug" enters your system it WILL NOT leave the system without beginning treated. Biocides not only kill the bug but also break it down to allow for it to be burnt off with the fuel.

Diesel Fuel Filter Rig 12volt PDFU12V

PDFU12V Filter Rig

- Steel frame with rubber anti-vibration feet
- Aluminium filter housing
- Hydraulic Spec Hoses with BSP fittings
- Self-priming diesel fuel transfer pump
- Sintered steel rotor & acetal resin vanes
- Cast iron pump body & anti-corrosion paint
- Incorporated bypass valve & NBR lip seal
- On/off switch
- Cable and battery clips with + fused line
- DC brush motor with permanent magnet stator
- Thermal motor overload protection
- Protection Grade: IP55



Photograph for illustration only.
Actual product supplied may vary slightly in design

Filter Unit

FA-ST Filtration Analysis Services Technology Ltd has introduced to their filtration system range a portable compact and lightweight (15kg) diesel fuel oil filtration system, designed specifically for Field Service Engineers, Boat Owners, Commercial and Automotive Vehicles and Agricultural fuel tanks. The rig is mounted in a powder coated robust steel frame with carry handles and can be operated direct from service vans, mobile plant or any 12volt DC battery supply. Fitted with a DC motor with integrated by-pass valve and an on/off switch and pressure gauge. Rising pressure indicates the filter cartridge is starting to clog.

Please note when using this unit it is recommended not to run it for more than 30 minutes or the pump will overheat

Flow Rates

Under normal ambient temperature operating conditions, the unit will process up to 600 litres per hour. Ideal for using on fuel tanks up to max of 200 litres.

Please note flow rates are for guidance only as levels are dependent on viscosity, temperature, degree of contamination, and oil pressure

Filter Cartridge

The filter cartridge is manufactured from a tightly wound cellulose impregnated paper and will remove all particle contamination to 3 micron absolute and all free and emulsified water. The cartridge will retain 0.75 litres of water and approximately 800gm of solid particulates. Supplied complete with a fuel filtration KF65 filter cartridge and 3 metre suction and return lines fitted with quick release couplings the unit is ready to use.



Diesel Fuel

Before and After Filtration



New Filter Element



Used Filter Element

HIRE OR BUY OPTIONS AVAILABLE. Bespoke rigs can be tailor made to suit job specifications. For further information regarding the FA-ST 12v filtration units call: 01246 268900 or email info@fa-st.co.uk

MS1/CF/240

Durable Tubular Steel Hand Carry Frame
9788 Super Duty Filter Unit
Pompe Gear Pump
240v motor with heat overload switch
Safety by pass valve
Pressure Gauge
Isolator On/Off switch
3 metre suction and return lines
Isolator/Emergency Stop Button



Photograph for illustration only.

Actual product supplied may vary slightly in design

Filtration Units

A simple free-standing, offline, fluid cleaning rig, used as a multipurpose cleaner or transfer unit.

Standard configuration single unit filtration unit. A heavy-duty hand carry frame fitted with a durable gear pump and 240-volt motor, single 9788 filter unit fitted with filter cartridge and mounted in a strong steel frame. Fitted with an isolator/emergency stop switch, internal pressure relief valve, pressure gauge, and 3 metre suction and return lines, supplied complete and ready to use.

Flow Rates

Under normal ambient temperature operating conditions, the unit will process up to 400 litres per hour. Ideal for using on fuel tanks up to max of 2000 litres.

Please note flow rates are for guidance only as levels are dependent on viscosity, temperature, degree of contamination, and oil pressure

Additional Options:

- Longer Hose Assemblies – *Suction lines for longer hoses MUST be primed before use or motor damage will occur*
- Free Standing Bund – *recommended for use with trolley mounted units or units without the integrated steel bund*
- 110v motor

Filter Cartridges

Filter cartridges are 3 micron absolute and filter to 1 micron, and will remove approx 1litre of water per cartridge and up to 2 kgs of dirt. They are manufactured from tightly wound cellulose impregnated long fibre paper. Polypropylene filters are available to filter all water and glycol-based oils and fluids. Based on normal use the average life span of cartridges under standard operating conditions will give 250-300 hours of continuous use.



Diesel Fuel

Before and After Filtration



New Filter Element



Used Filter Element

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MS2 Filtration Systems

MS2 Filter Rig Standard build options

Twin 9788 Super Duty Filter Units
Supplied on Skid frame with integrated bund or Upright Wheeled Trolley
Safety by pass valve
Polypropylene manifold
Isolator & On/Off switch
Pressure gauge
Pressure relief switch
Sampling point
3 metre suction and return lines.
Quick Release Couplings
All Units are CE certified



Pumps & Motors

Progressive Cavity pump approx 500-1200 litres per hour or
Haight Gear Pump range option approx 700 – 1600 litres per hour
110v, 230/240v, Air Driven or 3Phase motors with heat overload switch



Additional options

Bund & float switch – *recommended for trolley units or units without the integrated steel bund*
Bag filter – *with filter bags 1-100 micron ideal for protecting filters and removing contaminate from extremely dirty oils*
Magnetic filter (5" - 20") – *Removal of 99% of magnetic particles*
Longer hoses – *Can be supplied in any length, **we strongly recommend priming before filtering to protect the pumps***
Hose lances – *Ease of access into tight tank openings*

MS2 Filter Rig

MS2 Filter Rigs are ideal for filtering diesel fuel to remove water and particulate contaminate. These systems can filter, Particulate contamination in accordance with BS 5540 part 4: 1981 and ISO/DIS 4406. ISO equivalent to NAS 1638 class 6 or ISO 17/15/12 (Hydraulic oil specification). Twin unit rig will process approximately 500-1600 litres per hour dependant on temperature and viscosity. Unit supplied with a set of filters ready to use.

Flow Rates

Under normal ambient temperature operating conditions, the unit will process up to 1200 litres per hour. Ideal for using on fuel tanks up to max of 2000 litres.

Please note flow rates are for guidance only as levels are dependent on viscosity, temperature, degree of contamination, and oil pressure

Filter Cartridges:

Filter cartridges are 3 micron absolute and filter to 1 micron, and will remove approx 1litre of water per cartridge and up to 2 kgs of dirt. They are manufactured from tightly wound cellulose impregnated long fibre paper. Polypropylene filters are available to filter all water and glycol-based oils and fluids. Average life span under standard operating conditions 250-300 hours of continuous use.

Operating Temperatures: Within operating specifications of engine, gear and hydraulic oils.

Filtration Level: Particulate contamination in accordance with BS 5540 part 4: 1981 and ISO/DIS 4406. ISO equivalent to NAS 1638 ass 6. (Hydraulic oil specification).



Diesel Fuel

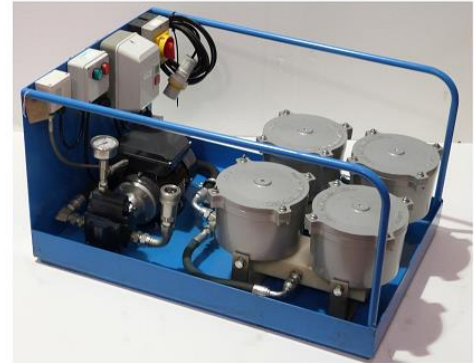
Before and After Filtration

HIRE OR BUY OPTIONS AVAILABLE. Bespoke rigs can be tailor made to suit job specifications. For further information regarding the FA-ST MS2 filtration units call: 01246 268900 or email info@fa-st.co.uk

MS4 Four Unit Filtration System

MS4 Standard configuration

Four Super Duty 9788 Filter Units
Integral heat overload switch
Skid Frame with Integrated Steel Bund
Nylon manifolds
Safety Float Switch
Safety By pass valve
Isolator & On/Off switch
Pressure relief cut out switch
Pressure Gauge
Quick Release Couplings
Sampling Point
3 metre suction and return lines



Photograph for illustration only.
Actual product supplied may vary slightly in design

Variations

- M range progressive cavity pump 750-1200 litres per hour **FOR DIESEL FILTRATION ONLY**
- Haight 3U/5U/8U gear pump, flow rates 3U 400-600/5U 600-800/8U 800-1200 litres per hour (*flow rates based on filtration of a 32-grade oil at ambient temperature*)
- 110v, 240v or 3 Phase Motors

Filtration System

MS4 Filter rigs are ideal for cleaning heavily contaminated diesel fuel contaminated with water and particulate contaminate. The four-unit filter rigs will process approximately 400-1200 litres per hour dependent pump selection and on temperature and viscosity of oil being filtered. With polypropylene cartridges the unit can be used on water-based oils and glycols. For Skydrol and phosphate ester oils different seals are fitted. Units supplied with 4 filter cartridges ready to use.

Flow Rates

Under normal ambient temperature operating conditions, the unit will process up to 1200 litres per hour. Ideal for using on fuel tanks up to max of 10000 litres.

Please note flow rates are for guidance only as levels are dependent on viscosity, temperature, degree of contamination, and oil pressure

Additional Options:

- Bag Filter & Housing – *removal of particulate contaminate from extremely dirty oils, also increases filter life span*
- Longer Hose Assemblies – *Suction lines for longer hoses **MUST be primed** before use or motor damage will occur*
- 5-20 inch magnetic pre filter – *removal of 99% of ferrous contaminate*
- Mini-magnet filters fitted to existing filter units – *removal of ferrous contaminate*
- Free Standing Steel Bund – *recommended for use with trolley mounted units or units without the integrated steel bund*
- Hose Lances – *allow access to tanks with tight access*

Filter Cartridges:

Filter cartridges are 3 micron absolute and filter to 1 micron, and will remove approx 1litre of water per cartridge and up to 2 kgs of dirt. They are manufactured from tightly wound cellulose impregnated long fibre paper. Polypropylene filters are available to filter all water and glycol-based oils and fluids. Average life span under standard operating conditions 250-300 hours of continuous use.

Operating Temperatures: Within operating specifications of engine, gear and hydraulic oils.

Filtration Level: Particulate contamination in accordance with BS 5540 part 4: 1981 and ISO/DIS 4406. ISO equivalent to NAS 1638 class 6. (Hydraulic oil specification)



Diesel Fuel

Before and After Filtration

HIRE OR BUY OPTIONS AVAILABLE. Bespoke rigs can be tailor made to suit job specifications. For further information regarding the FA-ST MS4 filtration units call: 01246 268900 or email info@fa-st.co.uk

MS8 Filtration Systems

MS8 Standard Configuration

8 x 9788 Super Duty Filter Units
Sturdy 4 wheeled trolley with 2 locking wheels
Safety by pass valve
Nylon manifolds
Pressure gauges
Pressure relief switch
Isolator & On/Off switch
Float Switches
Upper & Lower Bunds
Sampling Points
Quick Release Couplings
Suction and return lines 1" BSP Fittings



Photograph for illustration only.
Actual product supplied may vary slightly in design



Variations

- Haight 10U Gear Pump approx flow rate 1400-2200 litres per hour/ Haight 20U Gear Pump approx flow rate 2500-4200 litres per hour
- 110v, 240v or 3Phase Motor with heat overload switch

Additional options

Bag filter – with filter bags 1-100 micron ideal for protecting filters and removing contaminate from extremely dirty oils
Magnetic filter (5" - 20") – Removal of 99% of magnetic particles
Longer hoses – Can be supplied in any length, **ensure suction line is primed before filtering to protect the pumps**
Hose lances – Ease of access into tight tank openings
Hour meter – Keep track of run times/select when the unit is running

Filtration System

MS8 Filter Rigs are the heavy-duty range of FA-ST Filtration Systems capable of filtering between 1400-4200 litres per hour dependant on temperature, viscosity and level of contamination.
Added safety factor:
Bund float switches are used to prevent leakage of liquid as they automatically turn off the power supply to the motor. Filter housings are mounted within their own bund which is fitted with a float switch and the pump also has its own bund with float switch.

Flow Rates

Under normal ambient temperature operating conditions, the unit will process up to 4200 litres per hour. Ideal for using on large fuel tanks above 10000 litres.

Please note flow rates are for guidance only as levels are dependent on viscosity, temperature, degree of contamination, and oil pressure

Filter Cartridges:

Filter cartridges are 3 micron absolute and filter to 1 micron and will remove approx 1 litre of water per cartridge and up to 2 kgs of dirt. They are manufactured from tightly wound cellulose impregnated long fibre paper. Average life span under standard operating conditions 200-300 hours of continuous use. Cartridges are available in different configurations based on the type of oil/fuel being filtered.

Operating Temperatures: Within operating specifications of engine, gear and hydraulic oils.

Filtration Level: Particulate contamination in accordance with BS 5540 part 4: 1981 and ISO/DIS 4406. ISO equivalent to NAS 1638 class 6. (Hydraulic oil specification).

HIRE OR BUY OPTIONS AVAILABLE. Bespoke rigs can be tailor made to suit job specifications. For further information regarding the FA-ST MS8 filtration units call: 01246 268900 or email info@fa-st.co.uk



Diesel Fuel

Before and After Filtration

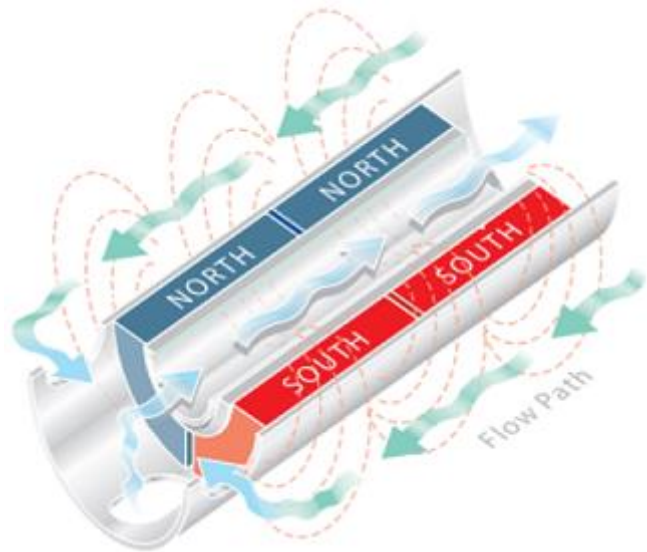
Micro-Mag Magnetic Filtration

This system incorporates the most powerful, natural, rare earth magnetic material to produce extreme magnetic flux fields to remove metal debris from fluids.

The units can be mounted onto existing filtration systems or directly to machinery and the Micromag is easily viewed and the fluid can be seen passing over the magnetic core where ALL metal debris is visibly removed. The unit has an anodised aluminium head and a clear filter bowl manufactured from Styrene Acrylo Nitrile (SAN). There are no parts to replace during cleaning.

THE MAGNETIC PROCESS

Contaminated fluid enters the inlet to be equally dispersed via radial channels, which slow the fluid down to pass over the outside of the centrally mounted 'rare earth' magnetic core. As more particles are attracted to the core the magnetic flux circuit geometry generates a controlled build up of contamination, so ensuring that the filter cannot block. The fluid then returns to the flow circuit through the central core.


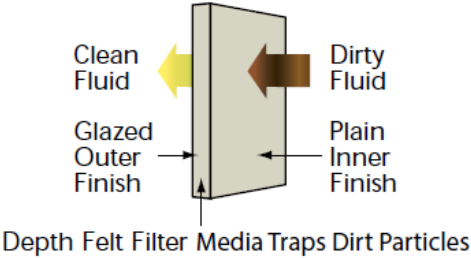

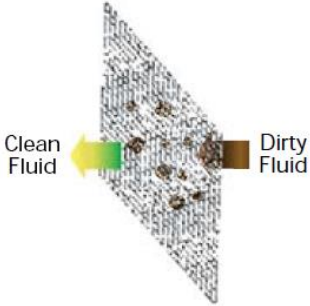



Bag Filters

Bag Filters provide an additional level of oil filtration removing particulate contamination from oil before it reaches the filter cartridges increasing their life span and allowing more contamination to be removed in each pass. Filtration Units can be supplied with bag filter housings and bags filters on both sales and hire filtration systems.

Filter Bags with moulded tops require no filter bag hold down devices. As the differential pressure in the application increases, the integrity of the seal improves. Polypropylene tops are standard with polyester optional for temperatures over 200°F or chemical capability.

FA-ST supply filter bags of the following make up:

	<p>FELT – Felt filter bags are made from synthetic fibres in polypropylene or polyester. The proper combination of fibre diameters, weights and thickness in an economical depth type filter media. Polypropylene and polyester bags are supplied with a glazed finish to reduce fibre migration. These bags have a nominal micron rating. Filter efficiency is about 50%</p>	
	<p>MULTIFILAMENT MESH – materials are offered in polyester and are woven from threads made of small fibres twisted together. Bags made of this material are low cost and considered disposable. They have lower efficiencies that monofilament mesh. Filter Efficiencies are about 80%</p>	
	<p>MONOFILAMENT MESH – is offered in nylon and is a woven material. Each thread is a single filament & the openings are square. They have excellent strength and are considered to be cleanable. Filter efficiency is 90% or more.</p>	<ul style="list-style-type: none"> ▪ Operates on the principle of surface filtration ▪ Wide range of micron ratings ▪ Reusable or disposable ▪ Non-fiber releasing ▪ Good efficiencies ▪ High contaminant quantities under correct conditions

Aqua-Zorb Water Removal Cells

The Aqua-Zorb water-free cell is a simple and effective means of removing water from the bottom of diesel fuel tanks. By using the fabric sheath containing a water absorbing formula, the Aqua-Zorb product eliminates the need for draining fuel tanks to remove water. The cells can be easily replaced to constantly provide a method of maintaining the integrity of the fuel whether it is in a storage tank or on a vehicle.

Water content in diesel naturally falls to the bottom of a tank and with particulate contamination can create the ideal breeding ground for bugs that impact on the quality of the diesel that can cause blocked filters and injectors. Normal methods of water removal by draining it off at the base of the fuel tank causes issues with health and safety and disposal. Aqua-Zorb eliminates the need for the draining of a fuel tank and the expanded sheath, which contains the water, can be disposed of using conventional waste collection services as there is no diesel contained in the formula.

Usage:

The Aqua-Zorb fabric sheath is dropped into a tank and the weight of the steel rod product positions it at the bottom of the tank. The hydrophilic formula inside the sheath only absorbs water and swells up to hold the waste liquid. The sheath can be removed using the attached cord to inspect the level of absorption, and can be replaced if necessary, with a new Aqua-Zorb cell.

Widely used in the haulage and agricultural industries, Aqua-Zorb is a reliable and safe means of maintaining the condition of stored fuel. Product tests have shown no leakage of the water from the expanded sheath, no contamination of the fuel from the product and no issues relating to removal and replacement of the product in the storage tank.



Aqua-Zorb before & after usage

For further information regarding the Aqua-Zorb Free water removal cells then please view the [Aqua-Zorb "How it works" Video](#)

Hydra Diesel Bug Treatment

Fuels left for storage in fuel tanks will always contain some water. The amount of water present will gradually increase with time. The longer the fuel is left undisturbed the more water it will contain. As freshly refined fuel cools down, its water solubility decreases. Henceforth, moisture, which was previously dissolved in the fuel begins to drop out of the fuel. This process continues throughout the fuel's cooling process even during transport. As fuel's specific gravity is lower than that of water, as dissolved water condenses it tends to drop out of fuel, accumulating in tank bottoms and in pipeline low-points.

Fuels are usually stored for a considerably long time before it reaches the customer therefore will always contain some water. Biological diesels such as (FAME) tend to hold more water than the conventional diesels. The accumulated water is an ideal environment for the microbes to thrive and contaminate the fuel severely compromising the consistency and quality of the fuel.



Thus technical challenges are faced by Company's in bulk storage and in vehicles, since all fuels types especially low sulphur and biological diesel can exhibit particular problems which cause difficulties in operation.

The fuels in storage, especially bio-diesel can absorb moisture from its surroundings, this can lead to microbial infestation and fuel bug issues. Fuel tanks/storages in hot countries can accumulate nearly 0.1% water depending on the volume and type of the fuel as a result of condensation during long-term storage. Microbial infestation including growth of microbes such as moulds, fungi and bacteria if left untreated during long term storage, can severely affect the fuel quality. This microbial attack leads to degradation of fuel, decreased in lubricity as fuel additives are broken down by the harmful microbes.

Features & Advantages

Stored/ remaining fuel in the fuel tanks remain protected against microbes for long periods.

Immediately rids all contamination and prevents the re-generation of microbes.

Hydra FuelPlus Biocide is soluble in both fuel and water phases for better and efficient killing.

No more fuel lines or filters that are blocked. Prevents clogging of injectors. Prevents failures of fuel system.

Cut's down expensive maintenance cost of bunker fuel and improves fuel economy.

Safe to use as non-flammable, non-toxic, non-corrosive. Totally combustible in fuel mixture.

Dilution Rates

Shock / Initial Dose: 1: 3000 (30 ml per 100 litre fuel)

For already microbe contaminated Fuel System

Add to the existing fuel tanks at recommended dosage to kill off all damaging microbial growth.

Refuelling Dose: 1:10000 (10 ml per 100 litre)

To Protect Clean Fuel System

Add the recommended refuelling dose in the tank before topping up with fresh supply. Ensure the addition of treatment refuelling dose every time the tank is topped up.