

UFI HYDRAULIC SOLUTIONS FOR CONSTRUCTION AND MINING APPLICATIONS



A WINNING COMPANY



ENGINEERED FILTRATION SOLUTIONS



A 30-YEAR SUCCESS STORY

UFI Filters Hydraulics, founded in 1992 in Bolgare, in the north of Italy, is the branch of the UFI Filters Group dedicated to hydraulics filtration solutions.

For 30 years, UFI Filters Hydraulics has specialised in the design and manufacturing of a comprehensive line of hydraulic filters, filter elements, spare parts and accessories, with the aim to create innovative and sustainable solutions in hydraulic filtration and to meet, at the same time, the requirements of the most demanding operating environments and applications.

UFI Filters Hydraulics daily journey consists in studying customers' filtration problems and sharing with them its worldwide experience, to ensure a safe and constant cleanliness level thereby creating reliable, proven and highly efficient hydraulics, both in mobile and stationary applications.

In 2022, UFI Filters Hydraulics acquired all of the shares of Friedrichs Filtersysteme GmbH, gaining access to a new world with several additional markets and extending its portfolio with new products and patents: duplex fluidtech® series of

filters, deltaP® differential pressure indicators, air-oil mist separators for big generators, silencers for air compressors, water filters for marine and industry and other filtration units and breathers for several sectors, including wind power generation, mining and chemical industry.

UFI Filters knows the basis of filtration and masters the best filtering materials to make it work at best. Thanks to its twenty years' experience in the production of filtration materials, UFI Filters released FormulaUFI, the brand name that encompasses all the company's filtration expertise and the name given to the filter materials selected and developed in the UFI Innovation Centres worldwide.

The company counts now six types of FormulaUFI:

FormulaUFI.Extreme
FormulaUFI.Stratiflex
FormulaUFI.Micron
FormulaUFI.Web
FormulaUFI.H20
FormulaUFI.Cell

MOBILE HYDRAULIC APPLICATIONS

The supply of reliable hydraulic power to vehicles serving the arduous requirements of the construction industry safeguards the system utilisation and the productivity levels, thus enabling vehicle fluid power systems to achieve exceptional performance and avoiding the expensive, time-consuming issues associated with unplanned downtime, maintenance and repair. UFI Filters Hydraulics has the knowledge and the engineering technology to master these issues with more than 6,000 references for mobile applications: agriculture, construction, heavy duty and material handling. In particular, UFI Hydraulics developed a new layout of green element series that prolongs the replacement intervals and means a reduction in labor, material and disposal costs. For these reasons, many well-known construction vehicle manufacturers and end users have placed their trust in UFI Filters Hydraulics' ability for many years, both in Original Equipment and in Aftermarket.

STATIONARY HYDRAULIC APPLICATIONS

UFI Filters Hydraulics has earned a solid reputation for quality and cost-efficient products also for CNC machines, presses, power generation, wind power applications and industrial hydraulic systems. UFI Hydraulics products meet the hydraulic-system requirements of maximum protection, with high efficiency and constant stability. High-performance microfibers filtration media, with high voids-volume, warrant validated levels of dirt-holding capacity, coherent with the economic extended machine-life and service-intervals demanded by the market. UFI Hydraulics developed some specific series for return and off-line applications to meet also the most demanding requirements to respect the environment and reduce polluting components in the hydraulic systems. These ecofriendly series presents coreless filter elements, that weigh up to 60% less than comparable elements with metal end caps and cores, combine environment compatibility with UFI certified quality, lightweight layout and easy service and can be used in a variety of lube & hydraulic systems such as wind power generation and industrial manufacturing, representing a high-performance solution for several hydraulic applications.

UFI FILTERS HYDRAULICS IN NUMBERS



1992

Founded in 1992, it's now a world leader in hydraulic technology



6

6 application sectors: from heavy duty, industrial and power generation to special applications



180

4 production plants and over 180 employees in 6 countries worldwide



6

6 lines of filter supplied: suction, return, pressure, off-line, transmissions, air

HYDRAULIC SECTORS



HEAVY DUTY

Trucks, buses, road building machines etc.



MATERIAL HANDLING

Forklifts, port machining, vertical lifts etc.



AGRICULTURAL

Tractors, combined harvesters, mixers, sprayers etc.



CONSTRUCTION

Excavators, backhoe loaders, dumpers, telehandlers etc.



INDUSTRIAL

Primary metal, ceramic presses, plastic presses, etc.



POWER GENERATION

Wind power generation, genset, oil & gas etc.



HYDRAULICS IN CONSTRUCTION & MINING

In the construction and mining sectors, hydraulic systems are still the main power transmission method for machines and equipment, such as hydraulic excavators. For this reason, the cleaning processes involving hydraulic systems and engines play a crucial role.

Construction and mining machineries contain a large number of elements sensitive to fluids contaminated by particles, water and air and require effective lubrication systems to improve efficiency, enhance productivity, reduce downtime, decrease the contamination on the ground and extend the life of the components.

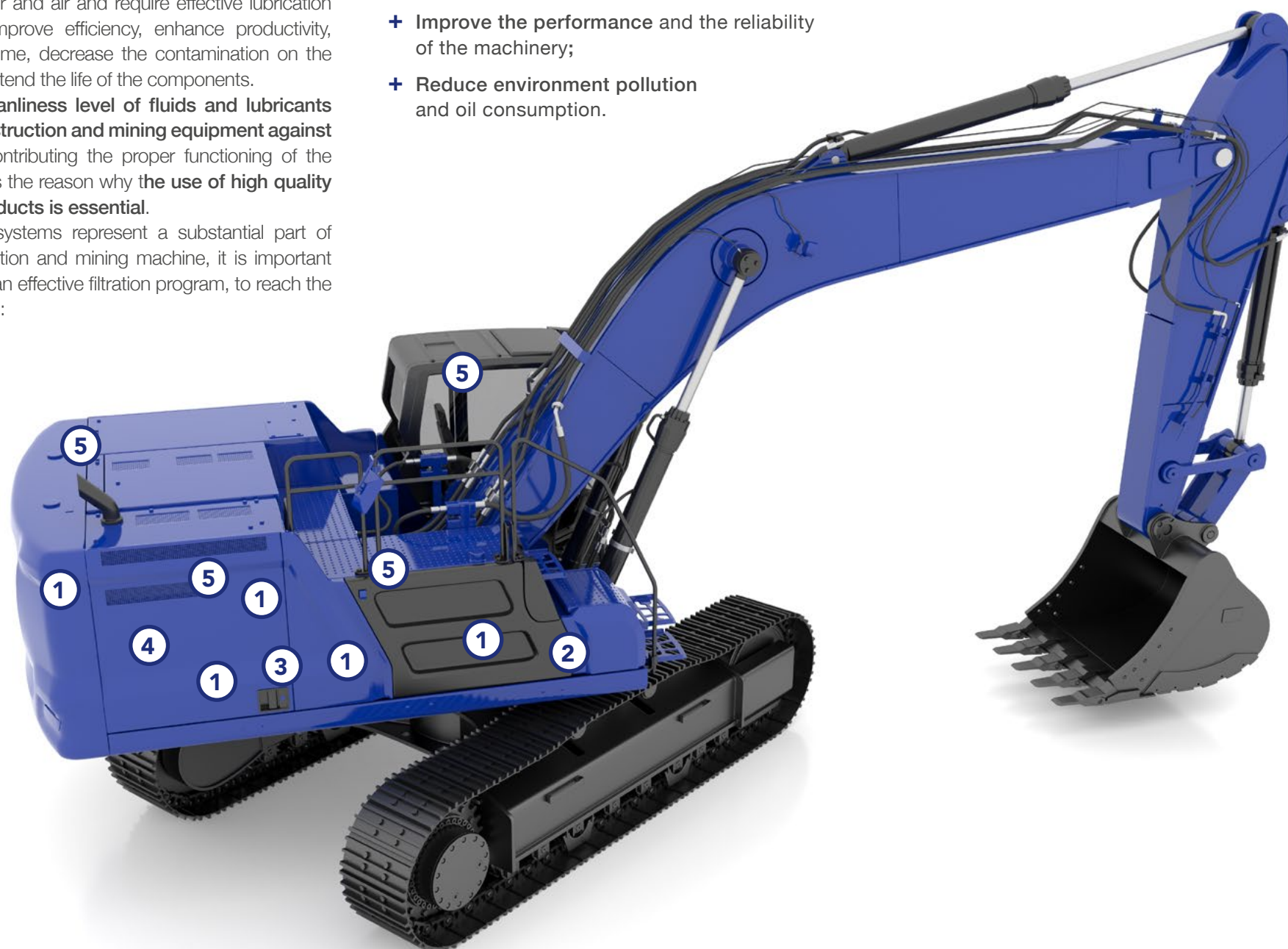
The right cleanliness level of fluids and lubricants protects construction and mining equipment against wear, thus contributing the proper functioning of the system. This is the reason why the use of high quality hydraulic products is essential.

As hydraulic systems represent a substantial part of each construction and mining machine, it is important to implement an effective filtration program, to reach the following goals:

- + Operate at efficiency peak;
- + Prevent the damage of sensitive components;
- + Extend maintenance intervals;
- + Reduce engine and hydraulic components wear and costs;
- + Improve the performance and the reliability of the machinery;
- + Reduce environment pollution and oil consumption.

For this reason, selecting the best supplier for the most critical hydraulic components is a matter of paramount importance.

UFI Filters Hydraulics has the necessary filtration technology and background to manufacture the hydraulic components to meet OE and independent aftermarket requirements for any hydraulic application.



① HYDRAULIC FILTRATION

The hydraulic filtration's primary function is to **preserve the fluid characteristics to ensure the proper working of the pumping system, thus protecting its expensive components.**

Hydraulic filters trap all particles generated by the equipment wear or coming from the environment, like water, air and solid particles, that have an abrasive effect on the components of the hydraulic system, such as the pump, control valves, cylinders and hydraulic motor. Ever higher pressures and shorter cycles affect components wear, thereby increasing the level of harmful contaminants in the oil that can cause malfunctions of the system and machine downtime. UFI Hydraulics complete filters and spare parts **ensure that the oil preserves its qualities over time**, thereby guaranteeing the **long life and performance of the hydraulic system, while maintaining the filtration system efficient and perfectly reliable.**

② TRANSMISSION FILTRATION

The transmission system is composed of clutch, gearbox, differential and reducers and has the function of transmitting the force, rotation and torque of the engine to the vehicle's wheels, making it move. The transmission fluid ensures that this task is successfully accomplished. Whether a construction equipment has a mechanical transmission or an hydraulic oil driven hydrostatic, **fluid maintenance is important to extend the life of the parts.** The UFI Hydraulics range of transmission and power steering solutions, including the FORTIMAX series, help protect critical components from wear and maintain peak operating performance.



HYDRAULICS IN CONSTRUCTION & MINING

3 OIL FILTRATION

The lubricating fluid has the functions of keeping the engine parts clean, reducing the solid friction between the components, sealing, protecting against corrosion, cooling the system and transmitting the engine's power to the other elements of the vehicle. For this reason, an efficient lubricating filter for construction and mining machines **is essential to ensure the longevity and reliability of the equipment**, since the filtration

system will retain metallic particles from wear between the engine parts and other contaminants potentially harmful to the engine. UFI Hydraulics complete filters and spare parts **maintain the lubrication system in good conditions, ensuring reduced maintenance, optimised operating costs and the extended lifetime of the equipment.**

4 FUEL FILTRATION

In order to ensure that the fuel entering the engine maintains a good quality, a filter must be installed at its inlet. This device has the function of retaining contaminants that can compromise the performance of the engine or cause damage to components and

the function to separate water, such as the injector and the hydraulic pump. UFI Hydraulics complete filters and spare parts **protect the injection system, even in case of extreme temperatures and under high pressure and strong vibrations conditions.**

5 AIR FILTRATION

For combustion to occur, air must enter the engine. The air has an important role also for the correct functioning of the reservoir, to provide space for the expansion of the fluid and help in cooling the fluid. In both cases, **air filters are designed to retain dirt, dust and soot before it enters the engine or the reservoir, thus avoiding water contamination and other particles potentially harmful to the machine.**

Constant maintenance and cleaning are necessary to ensure the proper air intake both to the engine and to the reservoir. UFI Hydraulics complete filters and spare parts meet today's high performance engines and tougher emissions standards demand to **help the combustion process and the reservoir functions to be carried out efficiently.**

6 OIL MIST SEPARATION

Crankcase ventilation (CCV) systems are designed to **protect the engine, prevent oil contamination and support emission regulation compliance**, helping to reduce oil consumption by eliminating mist, aerosol vapors and oil drip in the engine compartment. UFI CCV filters offers the industry's highest blow-by oil

mist separation efficiency by **providing superior oil coalescence and crankcase pressure control while removing unwanted emissions and protecting the clogging of intakes, turbochargers and intercoolers.**





HYDRAULIC FILTRATION SOLUTIONS

RELIABLE PRODUCTS TO ENDURE THE HARSHTEST ENVIRONMENTS

The construction and mining sectors are two of the **most demanding industries in the world, with narrow margins for unplanned maintenance.**

Construction and mining are essential industries with a vital role in modern society, as they support our energy systems, manufacturing, building construction, transport, and infrastructure.

These industries offer numerous types of heavy equipment for mining and construction to meet the specific needs of either underground or surface operations.

Moreover, operating environments are extremely diversified, and present variable soil that leads to high variation of vibrations and a high presence of dust and debris.

For this reason, **construction and mining applications require increasingly complex performing machines to operate without interruption in difficult environmental conditions, with flexible dimensions** depending on the use (drilling, blasting, digging to remove materials, extracting resources, loading material, etc.).

Lifting, transporting and positioning in Construction and Mining sectors are activities that require **specific machinery with powerful and reliable hydraulic systems, to perform in total safety and efficiency.**

UFI Filters Hydraulics, thanks to its 30 years of experience in hydraulic filtration, guarantees the necessary filtration technology and background

PLUS

- + High efficiency of filtration
- + Extended filter life
- + Longer service interval
- + Light design & heavy performance
- + High reliability
- + Wide range of **flexible and tailor-made solutions**

to manufacture complete filters, spare parts and accessories specifically designed for the construction and mining application, to meet the most demanding OE and independent aftermarket requirements.

UFI Filters Hydraulics products offer definite and reliable performance, that are considered strategic features when the machines involved in the maintenance operate in particularly contaminated contexts and difficult environmental conditions.



UFI Hydraulics components are designed to be **resistant** and, at the same time, **compact, lightweight and easily serviced**, yet providing at the same time exceptional service life to work properly in demanding operating environments.

UFI Filters Hydraulics offers well-engineered solutions to protect construction and mining equipment by helping to avoid malfunctions and unplanned machine downtime. UFI's hydraulic products improve the

productivity and the reliability of construction and mining machines, by **ensuring lasting and failure-free operations**. Several OE companies, as JCB, HYUNDAI CONSTRUCTION, KOMATSU, BELL EQUIPMENT, HYVA and XCMG, already chose UFI Filters Hydraulics as the technological partner in the development and optimization of hydraulic systems for any type of construction and mining vehicle.



HIGH EFFICIENCY FILTRATION



SUCTION FILTERS FOR PUMP PROTECTION

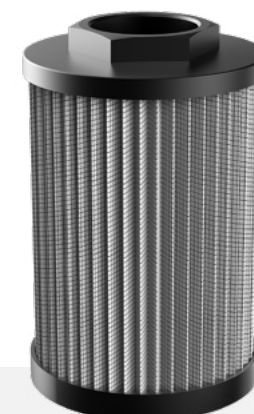
Hydraulic suction filters and strainers, immersed into hydraulic oil tank, protect the pump and system components from coarse contamination, mainly due to lack of initial cleaning of the construction and mining machines or to environmental pollution. Suction filters represent the “first-line” filtration and are often referred to as safety filters, thus ensuring:

- protection of the heart of the hydraulic system – the pump
- strength, flexibility and compatibility with a wide range of fluids
- high temperature resistance and extremely low pressure drop
- extended service life-intervals, unplanned downtime and maintenance

FAM



ESA-ESB



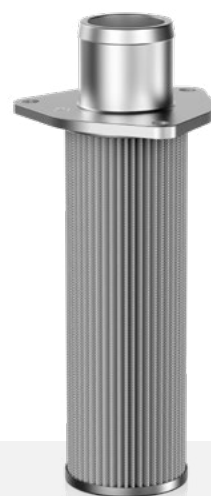
CUSTOMISED FILTERS



FSG



CUSTOMISED STRAINER



FSE



FSC





OPTIMAL EQUIPMENT PROTECTION

HIGH PRESSURE FILTERS FOR SENSITIVE COMPONENTS

The high pressure series offer a wide range of possible combinations, housing dimension and lengths, together with several filtration rating options, thus ensuring:

- **Protection of sensitive components**
- **Flexible configuration** for each specific construction and mining application
- **Reduced overall dimensions and spaces**, as well as piping and adaptor fittings required to protect sensitive components
- **Several available mounting pattern**
- **Lightweight layout**, with aluminum housing configuration

FPB



FLA



FPC



FPM



**FPO
WITH FORTIMAX
ELEMENT**

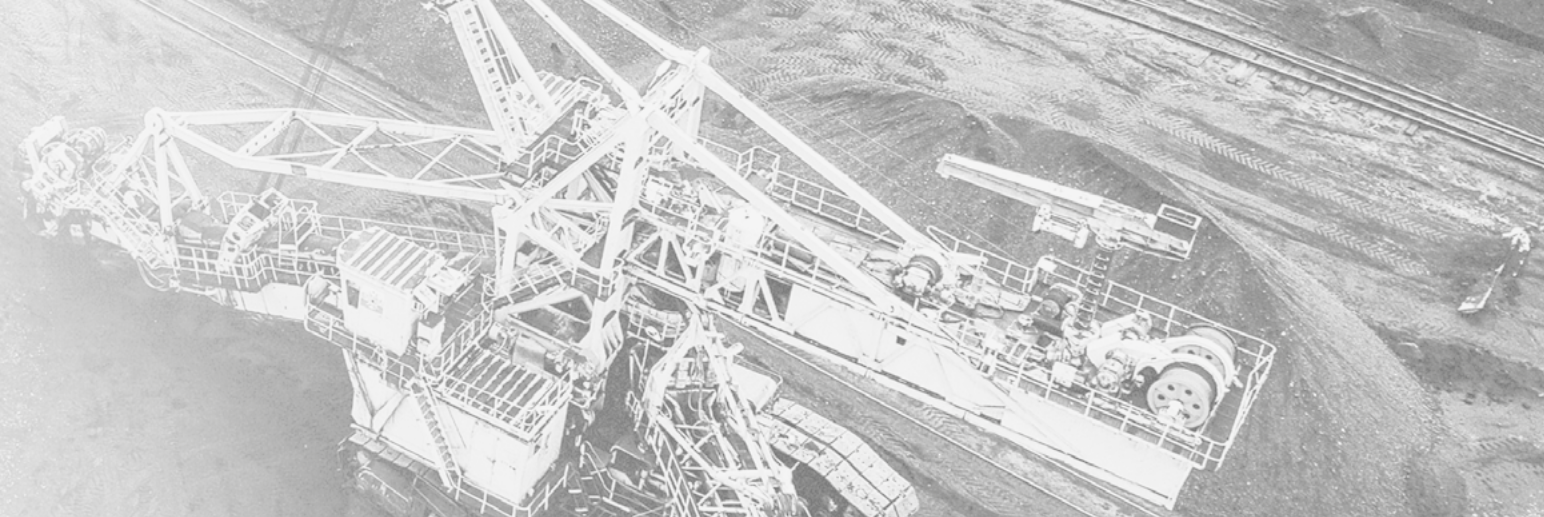


FPG





SMART FILTRATION SOLUTIONS



RETURN LINE FILTER TANK TOP MOUNTING

Return line filters play a critical role in the hydraulic system by ensuring that the fluid is kept free from solid contaminants, generated by deterioration of system components, that enter the oil reservoir and ultimately return to the system through the suction lines. For this reason, return filters are key elements for the filtration of construction and mining machines as they ensure:

- Compact and lightweight layout
- Inside to outside filtration for FRF
- Smooth and cost effective operation



FRB



FRD



FRF

PORTABLE FILTRATION UNITS FOR CONTAMINATION CONTROL

Portable Units are used for filtration and contamination control in the testing of construction and mining machinery, especially during the operations of running in, filling and flushing.

UFI Hydraulics Portable UOW Series allows for independently controlled offline filtration of the hydraulic oil 24/7, and can be used also in case of water fluid contamination or infiltration, thus safeguarding:

- Extended lifetime of critical components
- Improved cleanliness and lifetime of hydraulic oil
- Improved machine productivity
- Reduced risk of failure

ECOFRIENDLY
VERSION



UOW

HYDRO-DRY
WATER REMOVAL
ELEMENTS





EXTREME PERFORMANCE TECHNOLOGY

TRANSMISSION FILTERS FOR COMBINED PROTECTION

Hydraulic transmission filters are designed to work in hydraulic systems combined with hydrostatic transmission: return-suction filters replace the suction or pressure filters previously required for the feed pump of the closed-loop hydrostatic drive circuit as well as the return filter for the open-loop working hydraulic circuit.

Main advantages of UFI Hydraulics transmission filters are:

- Only one filter for both circuits
- The total oil volume filtered in the return line
- Excellent cold start
- Pump always fed with filtered oil



FTA-FTB

OIL FILTERS FOR ENGINE DEFENSE

Lube filters keep oil clean by capturing metal, soot and contaminants that can cause engine damage.

UFI Filters lube filters, using advanced technology and quality media, ensure long lasting and optimum engine protection to keep any agriculture equipment moving smoothly, thank to:

- High-filtration efficiency, cellulose-synthetic combined media
- Solid housing with lightweight layout
- Easy replacement of the filter element
- High performance



DURAFILTER®

GREEN OIL FILTER



CUSTOMISED OIL MODULE





HIGH QUALITY EXCELLENCE

FUEL FILTERS FOR MAXIMUM ENGINE PERFORMANCE

Fuel filters and pre-filters have the function of retaining contaminants that can compromise the performance of the engine or cause damage to components, such as the injector and the hydraulic pump. UFI Fuel filters range ensures:

- Engine components protection from rust and corrosion
- Long service intervals
- High water separation efficiency (>95%)
- Several layout options (fuel heater, WIF, temperature sensor, etc.)
- Bio-diesel compliance

**CUSTOMISED
PREFILTER
ASSEMBLY**



**CUSTOMISED
FUEL FILTER**



**WATER
ELIMINATOR
FILTER**



**PREFILTER
MODULE**





ENVIRONMENT PROTECTION COMMITMENT

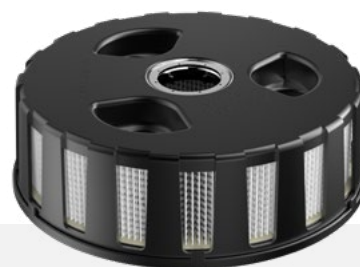


OIL MIST SEPARATION FOR ENVIRONMENT PROTECTION

Crankcase ventilation (CCV) systems are designed to protect the engine, prevent oil contamination and support emission regulation compliance. UFI CCV filters offers:

- Highest blow-by oil mist separation efficiency
- Superior oil coalescence and crankcase pressure control
- Removal of emissions
- Protection of the clogging of intakes, turbochargers and intercoolers

ROTATING BLOW-BY FILTERS



STATIC PANEL BLOW-BY FILTERS



CUSTOMISED BLOW-BY MODULE



AIR BREATHERS FOR RESERVOIR DEFENCE

Hydraulic air breathers are placed on hydraulic reservoirs and gearboxes to prevent atmospheric contamination from entering the reservoir as the fluid level drops from normal system cycling. Open-circuit hydraulic systems need breathers, so air can exit and enter the reservoir as the fluid level rises and falls. In addition to removing airborne dirt, some types of breathers are designed to remove the moisture from the incoming air. UFI Hydraulics air filters ensure:

- Optimal air movement inside the reservoirs
- Pressure equalisation inside the chamber
- Special protection against wear particles and destructive moisture

CBC



FAB



CSE





COMPREHENSIVE FILTRATION RANGE

AIR FILTERS FOR EFFICIENT COMBUSTION

Air filters are designed to retain dirt, dust and soot before it enters the engine, thus avoiding water contamination and other particles potentially harmful to the machine and ensuring the proper air intake to the engine. UFI Air filters and spare parts help the combustion process to be carried out efficiently, as they feature:

- **High-efficiency** media
- **Vibration-resistant** layout
- **Superior performance** and proven protection

CUSTOMISED AIR FILTER ELEMENT



SAFETY FILTER



AIR FILTER ELEMENT



HIGH QUALITY ACCESSORIES FOR ANY MEASUREMENT

Construction and mining applications are turning to automation and data to help monitor product and resource levels. There are plenty of opportunities for level measurement in the modern industry, as the level of the fluid in the tank or the pressure of the hydraulic oil flowing through the filter.

UFI Hydraulics accessories range meets the more demanding monitoring requirements:

- **High quality** standard
- **Electrical** or **visual** configuration
- **Standard and customised double settings** available
- **Stainless steel, glycerine filled** options

CLOGGING INDICATORS



CLA



CLB





The proper maintenance and accurate cleanliness of the hydraulic system are key factors in achieving the best performance of agricultural equipments while bringing down the maintenance and running costs.

All UFI Hydraulics elements are made with Formula.UFI media, to provide high levels of fluid cleanliness while maintaining low pressure drop characteristics.

Company with quality management system certified by DNV
ISO 9001 - IATF 16949

Company with environmental system certified by DNV
ISO 14001

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