

# UFI HYDRAULIC SOLUTIONS FOR AGRICULTURAL APPLICATIONS



# A WINNING COMPANY



# THE HYDRAULIC DIVISION



## A SUCCESS STORY SINCE 1971

Universal Filter Italiana, now UFI Filters, was founded in Nogarole Rocca, in Italy, in 1971 as a supplier of filtration systems for the automotive market.

Some 10 years later, the company began working with the most important Formula 1 teams, becoming supplier of specific, tailor-made solutions guaranteeing top performance and taking the teams to the top of the championships.

In the 1990s, thanks to the vision and growth goals of its owners, UFI Filters began to expand its boundaries into new product development and new world markets.

In 1992, UFI Hydraulic Division was established, starting production of filtration solutions for hydraulic applications in Bolgare, in the North of Italy.

At the start of the new millennium, UFI Filters became the supplier to the most demanding German car and transmission manufacturers, providing fuel filters, oil and air modules and hydraulic filters, thus reinforcing its reputation as a global Original Equipment supplier to the world's leading car manufacturers.

In 2010, UFI entered the world of heat exchangers, specializing in the design, development and production of vacuum-brazed aluminium water-cooled heat exchangers.  
Today, 6 of the 7 biggest automotive groups in the world work with UFI to develop complete filtration and lubrication systems.

The results obtained by the company can be attributed to the constant investment in research and

development (over 5% of turnover), allowing UFI to come up with innovative, exclusive solutions for its customers. Over the years, UFI has registered more than 250 patents.

The UFI Innovation Centers in Italy, India and China are equipped with sophisticated, advanced research and analysis tools for developing new products and filtration materials, both for automotive and hydraulic sectors.

UFI Filters now has over 4000 employees at 19 production sites, 3 innovation centers and 57 commercial offices.

Thanks to its Innovation centers and its wide experience, UFI Filters has developed different types of high performing media with specific Formulas, being the first in the market to introduce the synthetic fibres in fuel filters.

UFI filters meets also the requirements of maximum protection for hydraulic systems, with high efficiency and constant stability, thanks to high performance materials and filtration media, according to the market and technology demand.

UFI Filters knows the basis of filtration and masters the best filtering materials to make it work at best.

The company counts now six types of FormulaUFI:  
**FormulaUFI.Extreme**  
**FormulaUFI.Stratiflex**  
**FormulaUFI.Micron**  
**FormulaUFI.Web**  
**FormulaUFI.H2O**  
**FormulaUFI.Cell**

## ENGINEERED FILTRATION SOLUTIONS

UFI Hydraulic Division is the branch of the UFI Group dedicated to hydraulic filtration, specialized in the design, manufacture and marketing of a comprehensive line of reliable, high efficiency hydraulic filters for mobile and industrial applications.

### MOBILE HYDRAULIC APPLICATIONS

The supply of reliable hydraulic power to vehicles serving the arduous requirements of the construction industry safeguards vehicle utilization and productivity levels and avoids the expensive, time-consuming issues associated with un-planned downtime, maintenance and repair.

UFI Hydraulic Division has the knowledge and engineering technology to confront and master these issues with a proven range of filtration products for the mobile customer. Many well-known construction vehicle manufacturers and end users have placed their trust in UFI's ability for many years, both in Original Equipment and in Aftermarket.

UFI Filters Hydraulic Division's mission is to create innovative and sustainable solutions in filtration for mobile and stationary applications. UFI Filters puts customers first and aims to provide them with exceptional quality products to enhance the efficiency of their hydraulic systems.

### STATIONARY HYDRAULIC APPLICATIONS

UFI Hydraulic Division has earned a solid reputation for quality and cost-efficient products also for CNC machines, presses, wind power applications and industrial hydraulic systems.

High-performance micro-fibre filtration media, with high voids-volume, warrant validated levels of dirt-holding capacity, coherent with the economic extended machine-life service-intervals demanded by the market. There is no limit for oil cleanliness and therefore filtration quality should be as efficient as layout, costs and pressure-drop will allow.

## THE HYDRAULIC DIVISION BY NUMBERS



1992

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



150

3 production plants and over 150 employees in 6 countries worldwide



7

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



6

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





# HYDRAULICS IN AGRICULTURE

In the agriculture sector, cleaning processes involving hydraulic systems and engines play an increasingly crucial role.

Agricultural machinery contains a large number of elements sensitive to fluids contaminated by particles, water and air and for this reason requires correct lubrication systems in order to improve efficiency, enhance productivity, reduced downtime, decrease the contamination on the ground and extend the life of the components.

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

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

- + Prevent the damage of sensitive components;
- + Extend maintenance intervals and 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 Hydraulic Division has the necessary

filtration technology and background to manufacture the hydraulic components to meet OE and independent aftermarket requirements for agriculture applications.



## ① HYDRAULIC FILTRATION

The hydraulic filtration's primary function is 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, 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 increase 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 an agricultural equipment has automatic transmission or manual transmission, **fluid maintenance is important in order to extend the life of the parts.** UFI Hydraulics complete filters and spare parts assist in this task, **providing a longer time interval between one transmission oil change and another.**





# HYDRAULICS IN AGRICULTURE



## 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 agricultural 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, such

as the injector and the hydraulic pump. UFI Hydraulics complete filters and spare parts **protect the injection system, even in extreme temperatures, under high pressure and when subjected to strong vibrations.**

## ⑤ AIR FILTRATION

For combustion to occur, air must enter the engine. 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. Constant maintenance and cleaning are necessary to ensure the proper air intake to the engine. UFI Hydraulics complete filters and spare parts **help the combustion process 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 EXTREME CONDITIONS

The agricultural environment is extremely diversified, and presents variable soil that leads to high variation of vibrations and a high presence of dust and debris. For this reason, agriculture applications require increasingly complex performing machines to operate without interruption in difficult environmental conditions, with flexible dimensions depending on the use (vegetable or cereal crops, vineyards, orchards, horticulture, etc.). Lifting, transporting and positioning are activities that current agricultural machinery must perform in **total safety and efficiency**.

UFI Filters Hydraulic Division, thanks to more than 25 years of experience in hydraulic filtration, guarantees the necessary **filtration technology** and **background** to manufacture **complete filters, spare parts and accessories specifically designed for the Agricultural machines**, to meet the most demanding OE and independent aftermarket requirements.

UFI Hydraulic Division 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.

### 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**

UFI Hydraulics components are designed to be **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 agriculture equipment by helping to avoid malfunctions and unplanned machine downtime. UFI's hydraulic products improve the productivity and the reliability of agricultural machines, by ensuring lasting and failure-free operations.

Several OE companies, CNH, SAME DEUTZ FAHR, CARRARO and ARGO TRACTORS, already chose UFI as the technological partner in the development and optimization of hydraulic systems for any type of agricultural vehicle.





# HIGH EFFICIENCY FILTRATION

## SUCTION FILTERS FOR PUMP PROTECTION

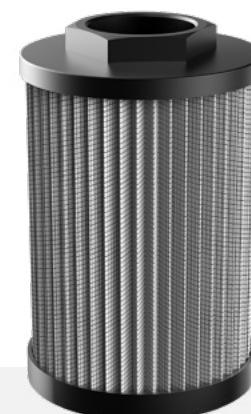
Hydraulic suction filters and strainers, immersed into hydraulic oil tank, protect the pump and system components from coarse contamination, mainly due to lack of initial cleaning of the agricultural machines or to environmental pollution. Suction filters represent the “first-line” filtration and are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



CAL



MSZ



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 degree options, thus ensuring:

- **Protection of sensitive components**
- **Flexible configuration** for each specific agriculture 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

XTT



FLA



FPC



FPM



FPO



FORTIMAX







# SMART FILTRATION SOLUTIONS



## RETURN LINE FILTER TANK TOP MOUNTING

Return Line filters remove the contaminants from the fluid used for lubrication, for this reason FRA, FRB and FRF series are key elements for the filtration of agricultural machines as they ensure:

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

**FRA**



## PORTABLE FILTRATION UNITS FOR CONTAMINATION CONTROL

Portable Units are used for filtration and contamination control in the testing of agricultural 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

**UOW**



**FRB**



**FRF**



**HYDRO-DRY**







# 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



### CBS



### CSE







# COMPREHENSIVE AGRICULTURAL 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

### AIR FILTER ELEMENT



## HIGH QUALITY ACCESSORIES FOR ANY MEASUREMENT

Agriculture 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 agriculture industry, as the level of the fluid in the tank or the pressure of the hydraulic oil flowing through the filter.

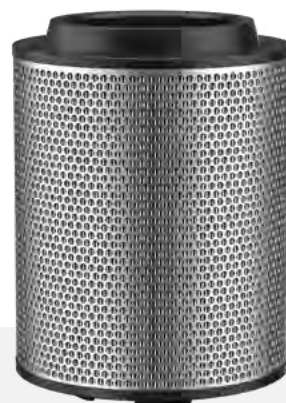
UFI Hydraulics accessories range meets the more demanding monitoring requirements:

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

### CLA



### CUSTOMISED AIR FILTER ELEMENT



### SAFETY FILTER



### CLOGGING INDICATORS





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.



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