Chosen by the best...

UFI Filters has been, and is being chosen by the best, when it comes to managing fluid-power cleanliness in mobile and stationary applications for automotive, heavy-duty vehicle and hydraulic-power markets. Principally known as an automotive supplier of choice to many of the World's major passenger-car manufacturers, our success as a hydraulic filtration supplier of choice is less known, but all the more a reality. Read on further and discover who we are...

The emphasis placed on UFI Hydraulic Division's participation at this year's Hannover Industrial Fair, is one of demonstrating our candidacy to meet your hydraulic filtration needs, being a "family-member" of an already highly respected industrial Group of companies serving the worldwide fluid-power needs of the automotive Original Equipment (OE) community.

UFI-Group's sound comprehension of the qualification requirements to serve this continually evolving, leading-edge technology market is the "ace-card" we play in hydraulics. Our adoption of the same systematic approach to innovative product development, from conception through to series release and full-scale production, has already earned us the recognition of some of the World's most prestigious manufacturers who rely on our high quality hydraulic filtration solutions.

In this, our 25th year of existence, the "uncomplicated" design of our exhibition stand sets out to highlight some of the leading-edge technologies which the visitor, may or may not connect immediately with our organization. Supported by the "Did you know...?" approach of this exhibition "special" and under the banner of the UFI-Group slogan "Chosen by the Best," we take pride in showcasing three examples of leading technological innovation, developed for three well known passenger-car and heavy-duty vehicle manufacturers (BMW, Mercedes-AMG and Ford).

The exhibition stand provides an ideal forum for discussion and exchange with existing and potential customers, perhaps also for those who are thinking to rekindle a lost business relationship. With the aid of a simplified flow-diagram central to our approach, we look forward to your visit and to constructive, mutually beneficial dialogue.

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A warm welcome to the UFI HYDRAULIC DIVISION Hannover Exhibition 2017

LATEST GENERATION

Oil & Diesel Filtration Modules for the recently launched Alfa Romeo “Giulia”
More on page 5.
UFI Filters oil module - A winner with BMW

UFI has developed products for diesel fuel filtration in BMW cars for many years and the latest supply contract serves to further consolidate our partnership with this German premium vehicle manufacturer. The agreement is testament to the recognition of UFI as a reliable partner providing high-tech, innovative and leading-edge filtration solutions to the World's vehicle manufacturers.

The filtration module meets the requirements of 3.0 liter petrol and diesel engines and has been developed specifically to equip B58 and B57 engines. The first reference representing the engines in BMW 340i, 440i and 740i vehicles, whilst the latter covers vehicles from BMW's 730d and 740d range. From this year onwards, these modules, fitted to the same engine types, will feature on BMW 5 and all other vehicles in the series.

Innovation & Technology

The polymer/fibre-glass filter-casing contributes to weight reduction and fuel consumption objectives, being up to 35% lighter than a similar casing in metal. The use of fibre-glass provides added strength to the filter-body and allows for operation under pressures up to 5 bar for diesel and even greater on petrol models.

The filter-media complies with Euro 6 performance stipulations (50% @ 13µm), providing a high filtration surface-area and minimizing pressure drop in the system. The entire unit is metal-free and ultrasonically bonded to maintain sealing under the most demanding of operational conditions. The entire oil-module is crowned with a proprietary heat-exchanger, incorporating thermostatic-values. There is a by-pass valve and two anti-drain valves, one of which can also serve as a by-pass.

UFI Filters - Formula 1's preferred filter supplier

Undisputed leader in filtration systems for Formula 1
- High-Tech Division dedicated to cutting-edge technology products
- Extensive experience across a number of special applications - results in a "lessons-learned" transfer of expertise and experience to the commercial-vehicle OE customer

Components made by UFI Filters feature in the main motor racing fixtures for 2017, bearing testimony to the extraordinary levels of innovation which continue to set the UFI brand apart from others.

All the major teams competing in this year's Formula 1 World Championships, use a variety of filtration solutions created by UFI Filters, confirming the position of UFI as the undisputed leader in this specialist field of premium motorsports.

All the filtration solutions are customized to meet the requirements of the individual team-cars and are subject to modification throughout the championships, thus reflecting the evolution of the F1 engines as the season progresses. In 2017, UFI Filters will supply approx. 15 different filters for each vehicle, ranging from engine oil filters, fuel filters (low and high pressure), "last chance* filters (for water- and/or oil-circuits), hydraulic and water filters for the cooling circuit, as well as filters for the power steering systems.

UFI Filters’ involvement in motorsport in 2017 does not stop at Formula 1. The company’s products are set to play a key role in the forthcoming MotoGP Championships, with engine oil filters and fuel filters on Aprilia and Ducati motorcycles and in the GT2, GT3 and Superbike Championships.

UFI Filters cleans the air for the MERCEDES-BENZ SLK 55 AMG super sports-car

UFI engineers, in close collaboration with Mercedes-Benz AMG, have developed a complete air-filtration module, reacting to demands for improved filtration efficiency, engine noise-reduction, weight reduction and space-envelope optimization.

The Mercedes SLK AMG has a 5.5 liter, V8 engine, based on technology inspired by Formula 1 racing-engines. This means that four of the eight cylinders can be deactivated to allow fuel savings of up to 30%.

The air filter is a fundamental element in any vehicle as it holds back contamination contained in the air, in the form of particles, from entering the engine. If not stopped, these particles can lead to premature wear of mechanical parts. The original equipment quality of the air filter module, guaranteed by UFI Filters, ensures top performance from the 5.5 V8 engine in the SLK 55 AMG, whilst enhancing fuel savings and reducing emissions.

The filtration media, at the heart of the air panel is a cellulose fibre, with a capacity certified in accordance with ISO5011 and a degree of efficiency which makes replacement necessary only after 60,000km.
You’ve got to be clean to run lean....

Those who know anything about lean-manufacturing will already be familiar with the 5-S approach - Seiro (tidiness), Selton (orderliness), Seiso (cleanliness), Seketsu (standardization) and Shitsuke (sustaining). Five fundamental governing principles which lie at the heart of the Toyota Production System (TPS), more commonly referred to as LEAN.

UFI Hydraulic Division constantly satisfy three of the five principles, namely Seiso, Seketsu and Shitsuke with their supply of rigorously pre-cleaned, tank-top mounted hydraulic return filters to assembly-line at Toyota Material Handling. Compliance with a strict Toyota Global cleanliness standard, aimed at avoiding “built-in” particulate contamination to new-build vehicles, involves ultra-sonic cleaning of all component parts of the return filter and assembly of the same under controlled environmental conditions. UFI’s attention to detail fulfills these requirements and contributes to the overall quality of the Toyota finished product.

Damage to mobile hydraulic-fluid power systems can be caused by the presence of “in-built,” hard particulate introduced into the system from the beginning by dirty/contaminated components. Such contamination can compromise vehicle efficiency through abrasive wear and in turn this can lead to interference with control and reliability when particles become lodged in hydraulic-valves. Starting a vehicle with a clean hydraulic-system from the outset avoids premature warranty costs and extends equipment life.

In the Japanese Shinto religion, “cleanliness is indeed next to Godliness” - Perhaps that’s why you’ve got to be clean to run lean!

For complete cleanliness control from start to finish:

- Ensure the fluid being used is clean from the start
- Ensure the components supplied are clean
- Ensure no “build-in contamination” in manufacturing and assembly

At the end-of-the-line, the best way to ensure the desired cleanliness is to perform final-flushing before the vehicle leaves the factory.

The closed-circuit hydraulic system, incorporating suction and pressure filters from UFI, boasts a load-sensing pump, delivering an impressive 210 l/min at 200 bar. The system can be equipped with up to 8 auxiliary valves (6 rear & 2 front), all with electronically controlled flow and timer functions.

The 90 litre hydraulic system oil tank is independent of the transmission tank to prevent dust or dirt from the auxiliary valves entering the circuit and causing damage to the transmission components.

Deutz-Fahr 9340 TTV Tractor
(EIMA exhibition, Bologna, November 2016)
7.8 liter, 6 cylinder Maximum power (ECE R120) 247.1 kW / 336 hp

Debris from a new hose Debris from a new valve Debris from a new valve Debris from a new valve

Deutz-Fahr Series 9 tractors embody the perfect combination between state of the art technology and the power and pulling ability of a range-topper tractor. The unmistakeable style of the four new 9 Series models is the result of an award-winning partnership with Giugiaro design.

UFI Hydraulic Division is able to propose standard and tailor-made solutions to meet these final-flushing requirements.
A “Total System Cleanliness Approach”
Excavators in the construction industry

More than 45% of the World’s construction machines are hydraulic excavators. Most of these vehicles are powered by a combustion engine, however unlike conventional automobiles, the generated power of the engine is also used to drive hydraulic-pumps, which provide a flow of hydraulic oil throughout the system.

Hydraulics is the science of transmitting force and/or motion through the medium of a confined liquid, producing power by exerting force on the same liquid. Pumps are installed to propel this liquid, known as hydraulic-oil, around the circuit and, at times, pressurize it.

Valve-blocks are used to control the flow and the direction of the oil to those areas of the vehicle from which movement is required.

The main components of an excavator, such as the boom, dipper-arm, bucket and swing-motor are all moved by hydraulic rams (pistons), which convert the fluid power of the hydraulic-oil into linear-force and motion.

The complexity of the hydraulic circuits on board an excavator and the harsh working environment they are built to endure, means that the reliability of such systems is of primary importance to the fleet operator and/or the user.

Feedback from hydraulic-system operators indicates that the reliability of the vehicle and its hydraulic system depends on many factors, not the least of these is pressure, flow, temperature, oil-viscosity and particulate contamination.

70 to 90% of hydraulic-system failures can be attributed to contaminated hydraulic-oil, which in turn leads to >80% of wear-problems and particulate induced problems of abrasion, erosion and fatigue.

Hydraulic circuit contaminants affect the performance and lifetime of hydraulic equipment, leading to one of three-types of system failure:

• Degradation - caused by particles corresponding in size to the clearance-dimensions of valve-channels, interacting with valve surfaces, causing abrasive-wear and corrosion issues.
• Intermittent - contamination causes temporary resistance in the valve-spool or prevents the poppet-valve from moving. Although these particles are likely to be washed away by the repetitive movement of the spool, only by completely removing the contamination will ensure the failure will not be repeated.
• Catastrophic - contamination, takes place suddenly and unexpectedly when larger particles or a larger collection of smaller particles cause complete seizure of moving parts.

There are many different types of contaminants that can lead to system-failure, of which moisture is probably the most common. In general, there are three main sources of contamination in hydraulic systems:

• Built-in contamination - known as “primary contamination,” originates from the manufacturer’s assembly and testing of hydraulic components or from the assembly process of the entire vehicle on the production line.
• Ingress contamination - often occurs due to insufficient sealing of hydraulic systems, such as rams (pistons), or insufficient atmospheric air filtration at the breather-cap on the oil-reservoir. Contamination can also be introduced during maintenance, especially during the hydraulic-oil re-filling process.
• Generated contamination - also known as abrasion, caused by contact of internal component surfaces with contamination during use.

Take a Total System Cleanliness approach

The "tangible-costs" of contamination control are represented by the initial installation of hydraulic-filtration and subsequently by the timely replacement of filter-elements, when they start to show signs of excessive contamination take-up and become uneconomical to leave in-situ. These costs typically represent only 3% of the total cost of untamed contamination!

The solution is to keep your head above the water-line by taking a "prevention is better than cure" approach, avoiding the following issues, directly attributable to contamination:

• Premature component repair and replacement
• Equipment downtime and lost production
• Excessive, unplanned maintenance
• Reduced hydraulic-fluid lifetime
• Unreliable vehicle performance
• Wasted time, energy and money

The “Total System Cleanliness Approach”

Suitable for hydraulic transmission & Power-steering applications

Improved flow-rates
Improved effective filtration-area
Higher dirt-holding capacity

Let the filter take the Strain!
Latest generation oil and diesel filtration modules from UFI Filters for the new Alfa Romeo “Giulia”

Recently launched, the latest offering from Alfa Romeo displays the legendary badge of its famous predecessor Alfa Romeo “Giulia” - Originally produced between 1962 and 1978. On board, the latest generation in UFI Oil & Diesel Filtration modules, comprising UFI proprietary DFM (Deep Filtration Media) and manufactured from an *all-polymer/fibre-glass* housing, meets cleanliness, weight reduction and fuel efficiency requirements.

**THE OIL MODULE**
Filter media for maximum efficiency
The heart of the oil-filter element is manufactured from metal-free cellulose media, ultrasonically sealed to cope with extremes of pressure and temperature. The filtration efficiency of 50% @ 13μm is in line with new Euro 6 requirements and the filter media is fully recyclable. The oil-module is equipped with a heat-exchanger, temperature and oil-pressure sensors, an anti-drain valve and a by-pass valve.

**THE DIESEL MODULE**
Exclusive, proprietary DFM (Deep Filtration Media) is at the heart of the UFI diesel fuel filter. This design, incorporates polyamide-fibres, arranged in size and orientation to meet the specifics of the application. The filtration-chain ends with a “last chance” filtration-stage ensuring filtration is maintained, even in the event of cold-start operation, when the pressure regulator valve opens. The filtration efficiency provided by this diesel filter is > 90% @ 4μm, in line with Euro 6 legislation requirements.

**UFI - Project Management**
Controlling each project-phase with an exit-gate!
As a successful supplier to OE in automotive, two factors are common-place to UFI: Change and Complexity.

Change: The World’s major car-makers are driven by consumer demand for greater product variety, better performance, improved safety, higher emissions standards and lower cost. UFI must remain competitive, productive, customer-focused and profitable.

Complexity: relating to the sheer number of factors involved in the effort to serve the OE customer Car-makers were amongst the first companies to transfer direct task responsibility, such as design, engineering, R&D and purchasing to their suppliers and today UFI is directly involved in supplying the innovative input to leading-edge technology solutions.

At UFI, Project Management consists of four major phases: Initiation (Q0 to Q2), Project Planning (Q3 to Q4), Project Execution & Control (Q5 to Q6) and Project Closure (Q7 to Q9). A life-size illustration of the diagram opposite can be seen on our exhibition stand. We’re happy to talk you through it, explaining our systematic approach in greater detail.

**UFI “Tech-day”**
The recent “Tech-Day” event at JCB was well received by the engineering community from all of the principle JCB manufacturing plants in the United Kingdom. We presented our range of “UFI Filtration Solutions” for the Heavy-Duty vehicle manufacturer. The day long-event consisted of a series of interactive presentations with a “hands-on” opportunity to witness the products, which were on display throughout the day.

**Did you know?...**

6 out of 7
OF THE CARS MOST SOLD IN GERMANY IN 2015
Are equipped with UFI Filters*

**A Blast from the past!!**
There are many historical ties between “Automotive” & “Hydraulic!”

The revolutionary Citroën DS (1950’s)

Styled by Italian Design-engineer, Flaminio Bertoni - the most amazing feature of the DS was it’s central hydraulic-system.
An engine-driven pump circulated pressurized hydraulic-fluid to operate steering, brakes, transmission and suspension.
Love it or leave it, the unmistakable “Goddess of the road”, with her rear-wheels, eight inches closer together than her front wheels*, represented at the time, a highly-innovative milestone in automotive engineering.
when the time comes to replace your hydraulic filter elements, don’t compromise on quality. Don’t buy a counterfeit, pirate part!

Globalisation and the highly competitive environment we live in creates enormous pressure on manufacturers. The temptation to cut costs and the underestimation of the importance of genuine hydraulic filter elements poses a real risk to manufacturing efficiency and productivity.

In a World of unbridled access to information, the decision-making process should theoretically have improved many fold. In actual fact, “information-overload” has resulted. The lack of reliability and transparency has played into the hands of the dubious and dishonourable, eager to make money by illegally exploiting the good name and reputation of others.

There will always be an alternative source for the filter element you originally bought, however this source doesn’t come without risk!

If you have been satisfied with the Genuine filter and its filter element, which could have been specified by your chosen equipment supplier (our OE customer for example) from the outset, why would you want to compromise that satisfaction now, for a part which is actually very reasonably priced, considering the service it performs and the protection it affords?

These “look alike” filter elements represent an unethical and often illegal practice that poses a real danger to your company’s operation. The equipment these filters are protecting has cost you a lot of money – much more than you can save by buying pirate elements. Therefore a compromise on the device designed to remove high-maintenance contamination from your essential hydraulic energy source, surely cannot make good business sense.

The difference between Genuine UFI parts and available “will fit” parts goes well beyond price and becomes a question of quality, confidence, and the available level of “fall-back” and support provided by a reputable filter manufacturer.

Before considering the purchase of a “pirate-element,” here are a few points worthy of consideration:

- Does your supplier have a long-standing reputation for the manufacture of high quality hydraulic filtration products?
- Does your supplier invest in testing and performance verification of its hydraulic filter range?
- Does your supplier design and test its filtration products in accordance with international performance standards?
- Does your supplier have a filtration technology background (UFI is a filter media manufacturer) on which to base the design and manufacture of “alternative” filter elements?

Genuine, UFI Hydraulic Filter Elements are made from the highest quality materials. Literally millions of our Genuine parts have proven themselves over the years in many varied applications. Others may offer interchangeable filter elements, but “under the skin” they are not the same - “It’s what you don’t see that may cost you dearly!”

The risk with non-genuine elements!
You mean I need to replace my filter element!.....

Our hydraulic system is an expensive piece of machinery and most probably your business relies heavily on its trouble-free performance?

Regular maintenance is therefore essential to achieve efficiency and productivity.

70% of all hydraulic system failures are said to originate from contamination, therefore regular filter element changes should be made an essential part of your desired maintenance regime.

How often should I change my filter element?

Knowing when your filter element needs to be changed is essential. If you change it after a set number of hours, you may be changing it too early or too late. Changing early, before the dirt-holding capacity in the filter has been exhausted you are potentially wasting money on unnecessary change-outs. On the other hand, if you wait too long, and the filter element is blocked, it may already be operating on by-pass. Contaminated oil by-passing the filter element is adding to the service life reduction of every component in your hydraulic system. Not to mention the increased running costs of your system in terms of kWh of electrical consumption, up until the point the bypass was triggered by a severely blocked filter element.

The importance of getting the timing right.

The best time to change your filter element is just before it reaches its maximum dirt-holding capacity (DHC) – this corresponds to the maximum amount of particulate contamination the filter media is capable of holding.

The most economic change-out time for your filter element requires a mechanism to monitor the pressure of the hydraulic oil flowing through the filter, and one which will alert you when this flow starts to diminish.

This is the most likely indication that the filter element contains excessive particulate contamination! A visual clogging indicator is the simplest and cheapest form of alert, however unless regularly inspected, not the most reliable of methods.

A better solution is to install an electrical clogging indicator with a voltage-free signal to a monitoring station for more accurate control. It is important to note that both methods must be set to trigger a signal at a pressure lower than the setting of the by-pass valve.

On return- and low-pressure filters, the clogging indicator can be a pressure gauge or a pressure switch. Both devices measuring the pressure upstream of the filter. On some return filters and on high-pressure filters, the clogging indicator can be of a differential type: measuring the pressure upstream and downstream of the filter and activating a signal when the differential pressure reaches the set value.

On suction filters, the clogging indicator is a vacuum gauge or a vacuum switch, which measures the de-pressurisation downstream of the filter.

All UFI filters are equipped with the necessary connection points to take whatever clogging indicator is preferred. A retrospective assembly of a clogging indicator to a filter, supplied as standard with a blanking plug, is possible at any time. Simply remove the plug and fit the desired indicator.

Don’t compromise hydraulic-system performance for the price of an element change. Ignoring this essential change-out requirement, or not fitting an indicator and forgetting the fact you have a filter, is a false economy and could cost you far more in downtime and expensive hydraulic component repair and/or replacement.
UFI Hydraulic Division

celebrate 25 years

UFI Hydraulic Filtration Division (Planet Filters SpA) announce the celebration of our “silver anniversary” in 2017, entering officially our 25th year on the 22nd of July 2017. We take this opportunity to recognize and thank our national and international customers for their loyalty and support and for truly being our “raison d’etre.” Not forgetting our trusted suppliers and of course the heart of our organization, our employees.

Finding UFI Hydraulic filters sometimes means “knowing where to look”!!