



New UFI fuel-filter module and blow-by filter for FPT Industrial's Cursor XC13 engine

- The new UFI Filters filtration module for the Cursor XC13 engine integrates prefilter and filter as well as multiple innovations
- The module allows a water separation capacity of up to 96%, with an automatic discharger electronically activated from the vehicle cab
- The use of lightweight materials contributes to vehicle weight reduction and sustainability
- A blow-by gas filtration system enables low emissions

Nogarole Rocca, 26 September 2024 - UFI Filters, a leading company in filtration, thermal management and technologies for the development of hydrogen mobility, has produced a new filtration module supplied to FPT Industrial as original equipment for the new Cursor XC13 engine, a top-of-the-range heavy-duty on-road vehicle powertrain with a displacement of 13 litres and a power output of up to 600 hp.

The new UFI Filters filtration module allows a concentration of technologies that integrate both the filter and the diesel pre-filter in the same component. Its main innovations include the very high separation performance of water from diesel fuel that reaches up to 96% and is achieved by the pre-filter module. This water can then be discharged separately from the diesel fuel via an automatic system operated from the vehicle's cab. The module also uses lightweight materials with an optimised design, which contribute to reducing the weight of the vehicle. The module is also equipped with a thermostatic valve, a non-return valve and two valves to facilitate service operations, developed and manufactured by UFI. In addition, a suite of high-tech pressure and temperature sensors measure the working conditions of the different circuits.

This type of module is designed to meet the most extreme requirements. In fact, by ensuring low pressure drops in the diesel circuit, it contributes not only to the reduction of fuel consumption, but also to the achievement of maximum performance of the heavy vehicle on a high level.

UFI Filters' new filtration module is instrumental in reducing the weight of vehicles fitted with the new Cursor XC13, and thus contributing to their sustainability. In the construction of the module, UFI uses aluminium and technical polymers (such as polyamide) to keep the weight down. The pre-filter is made with the synthetic filter media **FormulaUFI.Extreme** coupled with a hydrophobic inner septum, so that a water separation capacity of up to 96%, according to ISO 16332, is guaranteed.

UFI FILTERS SPA

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The filter, which has the function of separating the finest particles, is made of **FormulaUFI.Stratiflex** filter material, a combination of meltblown and cellulose, which achieves a filtration capacity of 98% at 4 microns, according to ISO 19438.

For FPT Industrial Cursor XC13 engines, UFI Filters also supplies a new rotary type blow-by filter, developed as an evolution of existing products in the UFI filtration system range. Made with filter media **FormulaUFI.Micron**, it offers high filtration capacities of even the smallest particles, helping to maintain low emissions throughout the vehicle's life.

The new integrated filtration module for FPT Industrial's Cursor XC13 engine is further confirmation of the technological excellence achieved by UFI Filters, as well as the company's ability to work side-by-side with OEMs to develop cutting-edge tailor-made products in line with renewed sustainability requirements.

TECHNICAL DETAILS

▪ **Automatic water drainage**

Diesel fuel is filtered in two stages, both of which are handled by the new integrated UFI Filters module. The pre-filtration cartridge removes larger contaminating particles from the diesel fuel, together with water, which is often present in the fuel distribution network.

The UFI pre-filter module, thanks to the filtering material in FormulaUFI.Extreme coupled with a hydrophobic candle inside the cartridge, is able to separate up to 96% of the water present in the diesel fuel, which is collected in the tank at the bottom of the pre-filter. This feature is an important innovation that has been introduced by UFI in the Cursor XC13 engine. Previously, water was drained manually by the vehicle or maintenance operator using special taps. The new UFI module, on the other hand, is equipped with an automatic system that allows the water storage tank to be emptied when the maximum capacity is reached, simply by operating a control switch located in the vehicle cab. A special signal on the vehicle's instrument panel warns when this is necessary.

▪ **A high-tech pre-filter**

Another important component of the pre-filter is the thermostatic valve, developed and manufactured by UFI, which has the task of rapidly heating the diesel fuel during operation in very low ambient temperatures. The diesel fuel is heated within the circuit and brought to the optimal conditions for the circuit. The pre-filter is also equipped with a non-return valve, which prevents the diesel fuel from flowing back into the tank through gravity when the engine is switched off.

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Both the filter and the pre-filter are equipped with sensors, whose task is to measure the conditions of the different circuits. The pre-filter is equipped with a pressure sensor, while the filter measures both pressure and temperature; the former operates with negative pressure, while the latter operates with positive pressure. The circuits are separate, but connected by a system of fittings that connect them to the pumps.

▪ **The role of the filter**

The filter has a fine filter element with very high efficiency and dirt-holding capacity, i.e. it is able to remove the smallest particles from the diesel fuel. It has a filtration capacity of 98% at 4 microns, according to ISO 19438, thanks to the FormulaUFI.Stratiflex material. In this way, it contributes to preserving the integrity of the engine's injectors.

▪ **Facilitated service**

Periodic maintenance of the filtration module is scheduled by the vehicle manufacturer according to the mileage driven. Maintenance requires the operator to empty the filter and pre-filter of diesel. For this purpose, an additional valve is provided in the UFI module, which drains the fuel into the tank. This prevents spills that are dangerous for technicians and harmful to the environment. Next, the filter cartridges and pre-filter, which have patented couplings, are replaced, and then the circuit is refilled with the special pump - known as a priming pump - which has the function of filling the circuit during maintenance operations. A pump draws diesel from the vehicle's tank and fills the circuit: first the low-pressure pump, then the pre-filter itself, the filter and finally the high-pressure pump. A bleed cock on the filter cap also bleeds air from the circuit. Water draining, on the other hand, takes place in automatic mode, and can occur several times during the life of the cartridges, depending on the quality of the diesel used.

▪ **The blow-by filter**

The blow-by filter for the FPT Cursor XC13 engine is anchored to the high-pressure pump and is a rotary unit. The filter media used is FormulaUFI.Micron, which consists of glass fibres combined with other synthetic fibres and an external plastic mesh. It offers high filtration that captures 95% (according to ISO 17536) of even the smallest particles.

The function of the blow-by filter is to separate oil and air in the vapours rising from the engine crankcase, which plays a key role in reducing polluting engine emissions. Thanks to the rotary separator, which acts both through the filter media and by centrifugal force, oil particles are forced onto the outer walls of the crankcase ventilation system cover and the air is sucked in through a hollow shaft and cleansed of combustion residue. It is then fed back into the engine's intake system.

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PRESS RELEASE

Oil recovery plays an essential role in maintaining the cleanliness of the engine's compressor turbine and preventing carbon residues from building up on the engine's air intake side. In this way, the UFI blow-by filter contributes to maintaining low emissions throughout the vehicle's life.

UFI Filters:

Founded in 1971, UFI Filters is a global leader in filtration technology and thermal management solutions, as well as hydrogen filtration. It serves a wide range of sectors – from automotive, aerospace and marine, to specialised industrial and customised hydraulic applications. Renowned for its innovation, UFI's products and know-how are found in all kinds of vehicles – from Ferrari and other top F1 teams, to the European ExoMars spacecraft.

UFI supplies the full range of air, oil, fuel, cabin, hydraulic and coolant filters as well as thermal management systems (including heat exchangers for combustion, electric and hybrid vehicles) to the automotive sector, meeting the needs of nearly all car brands and motorcycles as well as commercial, heavy duty (on-road and off-road) and agricultural vehicles. In the OE market, UFI is a leading filtration provider. Each family of filters within the company's two Aftermarket brands, UFI and SOFIMA, covers 98% of the European car parc.

One of the first Italian companies to identify growth opportunities in the Far East, today UFI has 21 industrial sites and employs over 4,000 people in 21 countries. It employs over 250 specialised technicians in its 3 Innovation and Research Centres and holds more than 320 patents. As a research-driven company, it reinvests over 5% of its revenues in R&D.

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Images attached:

UFI Filters fuel-filter module for the FPT Cursor XC13 engine

UFI Filters blow-by filter for the FPT Cursor XC13 engine

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