

Product technology

Fundamentals, expertise
and workshop information

purifying our planet

hengst.com

Hengst
FILTRATION

4	Filter media and their applications
6	Oil filtration
10	Fuel filtration
12	Air filtration
14	Cabin air filtration
16	Transmission oil filtration
20	Hydraulic filtration
22	Special applications
24	Crankcase ventilation
26	Technical inspection & simulation
28	Oils and lubricants
29	P3 half mask
30	Hengst type designation
32	Disposal of oil filters
34	Protection against counterfeits
36	Filtration in commercial vehicles
38	Hengst services



Concentrated expertise in all aspects of filtration

Mobility is the pulse of our social and economic existence. Although new technologies continue to develop, people and goods will still have to be transported from A to B for many decades to come. While filtration products are not always visible, they are an essential support to the pulse of mobility.

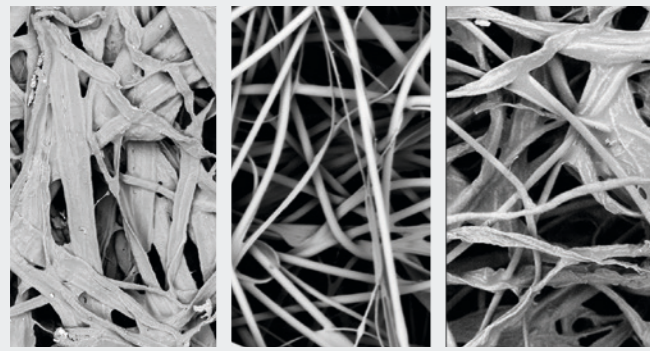
As a company with more than 65 years of experience in the industry, at Hengst we develop custom-tailored product solutions for diverse drive concepts – from combustion engines to fuel cells – on every continent in the world.

We are constantly expanding our range of products so that we can continue to be your partner for high-quality replacement parts and repairs in the future as well – whether for the classic combustion engine or modern electric drive. As a reliable development partner and OEM supplier for numerous automotive and heavy-duty manufacturers, top quality is inherent in all of our products and services.

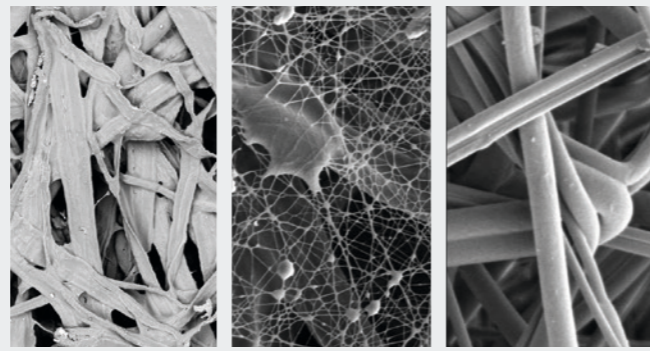
This publication gives us the opportunity to share technical knowledge with you about the various products included in motor vehicles. It provides insight into exciting technologies and our development activities, as well as information about current trends.

Best regards,

Adrian Rothschild
Group Director Product Management



Filter media can consist of **cellulose** (left), **synthetic fibers**, or a **combination** of the two materials (right).



Cellulose (left) as the base material, supplemented by **nano fibers** (center) or **melt-blown material** (right).

Overview of common filter media

Filter material	Features	Filter efficiency	Standard	Use
Cellulose	<ul style="list-style-type: none"> High strength High stability 	X50 = 19–24 µm T4 µm = 60–80% Total filtration efficiency = 97–99%	ISO 4548-12 ISO 19438 ISO 5011	Oil, fuel and air filters
Cellulose and polyester	<ul style="list-style-type: none"> Improved filter efficiency, dust absorption and stability 	X50 = 13–25 µm T4 µm = 70–85% Total filtration efficiency = 97–99%	ISO 4548-12 ISO 19438 ISO 5011	Oil, fuel and air filters
Fully synthetic media	<ul style="list-style-type: none"> Long life Good temperature stability High resistance to aggressive oil and fuel components Resistance to water 	X50 = 5–25 µm T4 µm = 90–99.8% Total filtration efficiency = 99–99.9%	ISO 4548-12 ISO 19438 ISO 5011	Oil, fuel and air filters
Melt-blown medium	<ul style="list-style-type: none"> High dust retention capacity and high filtration grade 	T4 µm = 90–99.8% Total filtration efficiency = 99.9–99.98%	ISO 19438 EN60335	Fuel and air filters
Activated carbon medium	<ul style="list-style-type: none"> Filtration of acidic gases, vapors, pollen, microorganisms 	PM 2.5	DIN EN ISO 16890-1	Cabin air filters
Non-curing (NC) medium	<ul style="list-style-type: none"> F1 flame retardancy Energy-saving construction 	Total filtration efficiency > 99.95%		Air filtration



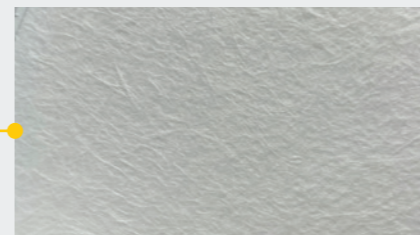
X50 = 50 % of particles of the specified size in the unit µm are filtered out
 T4 = Filtration level with a particle size of 4 µm
 PM 2.5 = Fine particles with a diameter of less than 2.5 µm



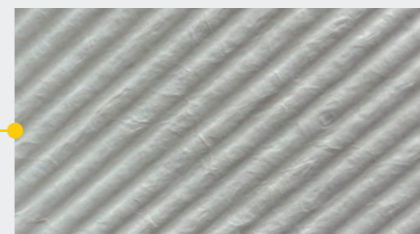
Cellulose features high stability and strength as a base material in filtration.



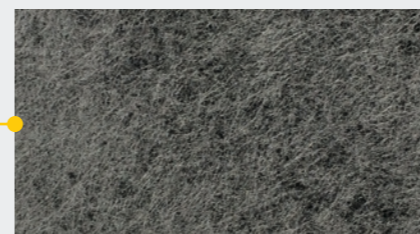
Cellulose and polyester improve efficiency and dust absorption in filtration.



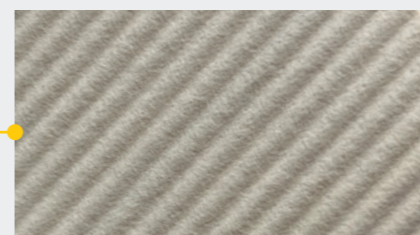
Fully synthetic media are additionally resistant to extreme temperatures and water.



Melt-down media additionally feature high dust retention capacity.



Activated carbon media are used in cabin air filters.



The **non-curing (NC) medium** is used in air filtration.

Filter media and their applications

As the central element of every filtration solution in modern vehicles, filter media combines numerous functions. They filter out contamination in the form of particles or gases, which can enter the engine or vehicle interior via operating systems such as air, oil and fuel. Depending on the requirement, different filter media are used in different combinations.

Material mix

Filter media used in different applications differ in the composition of the fiber and pore structure, which also affects the filtration grade. The finer the fiber diameter and pore size of the filter media, the finer the filter. Filter media consists of cellulose, synthetic fibers, or a combination of the two materials. Another type of filter media in use is a combination of the base material cellulose and an additional layer of melt-blown or nano fibers. Cellulose is strong and has good filter efficiency and dust capture and retention properties. Synthetic fibers, on the other hand, can be used to optimize filter efficiency, dust capture and stability. Together, the materials form an ideal combination of durability, filter efficiency, dust capture and stability, to increase the performance of modern filters.

Filter media must be resistant to mechanical, thermal and chemical effects. Depending on the application, they filter out fine or coarse dusts and particles, pollen, bacteria, mold, gases or odors.

The choice of media is also determined by the filtration challenge (whether fluids or air), by the type of contamination present and by ambient conditions, such as temperature or humidity.

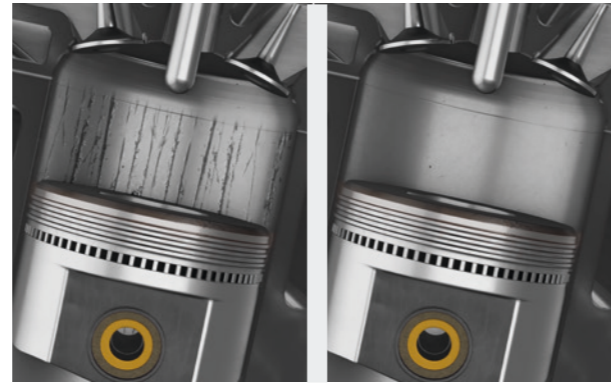
Info

Oil filtration

Efficient operation of a combustion engine requires permanent lubrication of the moving engine components with oil. Wherever engine components engage or contact each other, friction and heat are generated, which leads to abrasion. Mineral-based engine oils were used in the past. Today, synthetic oils have gained widespread acceptance due to their improved properties and exact formulation capacity using complex additive packages. State-of-the-art oils also have very low viscosity. Modern engine concepts increasingly use viscosities such as SAE 0W16 and SAE 0W20 in combination with a reduced HTHS viscosity. This complicates the challenge of oil filtration, because of decreased bonding of oil particles with each other, increased flow velocities and pressures (in spots), and challenging temperatures. In the case of hybrid engines, oils with viscosities of SAE 0W12 and SAE 0W8 are already being used.

While there is no minimum filtration level for oil filtration, vehicle manufacturers have certain requirements that need to be considered by filter manufacturers. In the end, contamination particle size and makeup drives the filtration need.

The oil film between the moving parts of the engine, such as the cylinder surface and the piston rings, is a crucial factor for smooth operation and engine life and can be as thin as 1 – 3 μm . This creates a high level of sensitivity to combustion residue and ultra-fine particles, which can negatively affect the oil film. In fact, high concentrations of ultra-fine particles with a size of 1 μm can be a key reason for engine wear.



Even the smallest particles in the oil can cause substantial damage to the cylinder surface.

Ideally, the oil forms a homogeneous separating layer between the moving engine parts, thus preventing direct contact. The piston rings maintain the oil film between the piston and the cylinder liner. In addition, the oil dissipates the generated heat to the engine coolant, transports dirt and prevents corrosion. The lower the friction and wear, the better the efficiency of the engine. To prevent enhanced friction from ultra-fine particles and soot, the oil filter must operate reliably at all times to prevent abrasive wear from the pairing friction parts in the engine and transmission. Without an oil filter, the optimal supply of oil to the engine and auxiliary systems such as the turbocharger would be impossible. Potential consequences of excessive oil contamination include increased fuel consumption, reduced engine performance and premature wear. In the worst case, damage to the engine or turbocharger can occur. Incidentally, high-quality oil filters are built to withstand temperatures as high as 160 °C, with static pressure resistance of up to 20 bar.

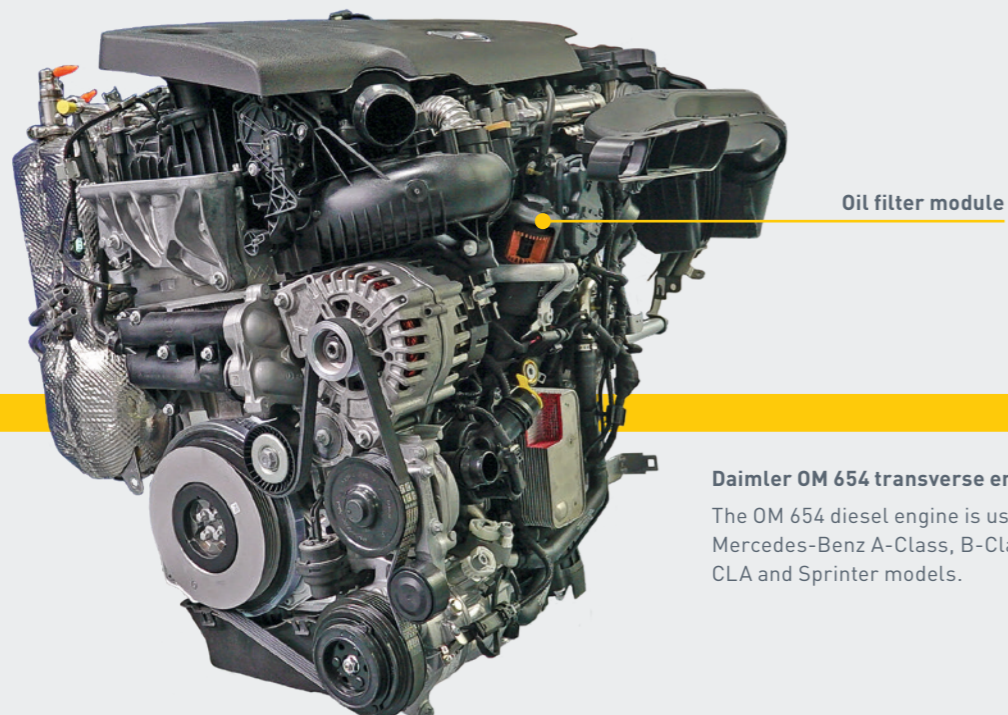


The oil filter modules are extensively tested on test benches.

Oil filter modules

The ongoing trend towards downsizing, more compact installation spaces and lightweight construction in the automotive industry means that car manufacturers are integrating more and more functions into auxiliary units.

As a result, the vertical range of manufacture at car manufacturers is decreasing and suppliers such as Hengst are involved as engineering partners at an early stage of product development. One example is the development of oil filter modules.



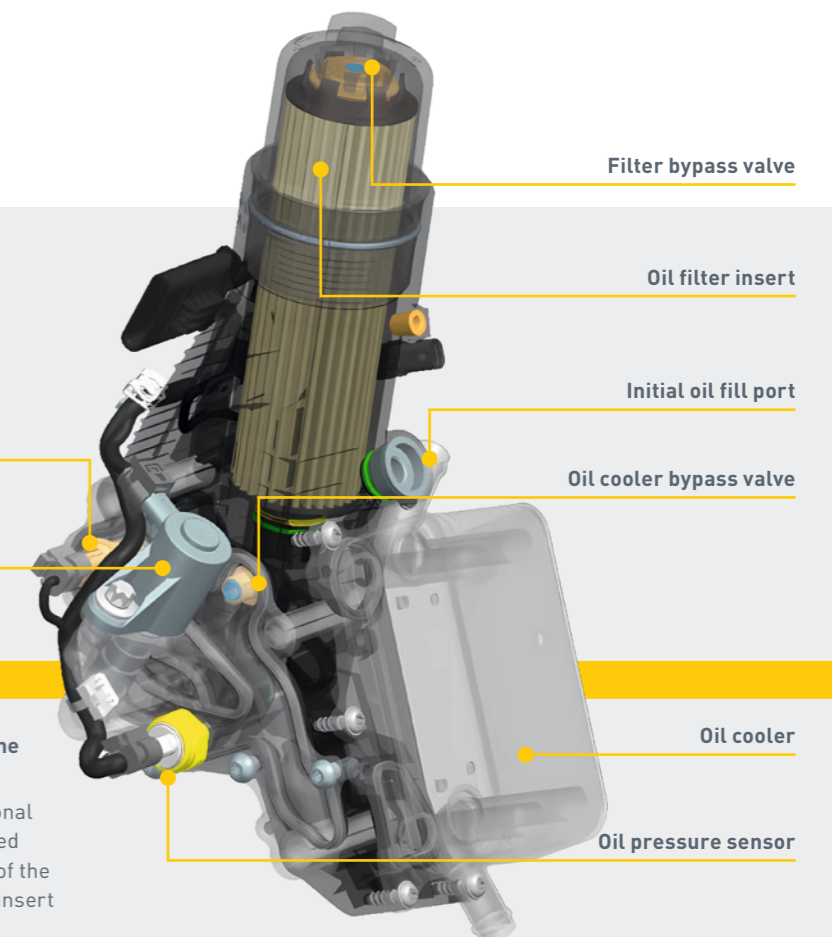
Daimler OM 654 transverse engine

The OM 654 diesel engine is used in Mercedes-Benz A-Class, B-Class, GLA, CLA and Sprinter models.



Oil temperature sensor

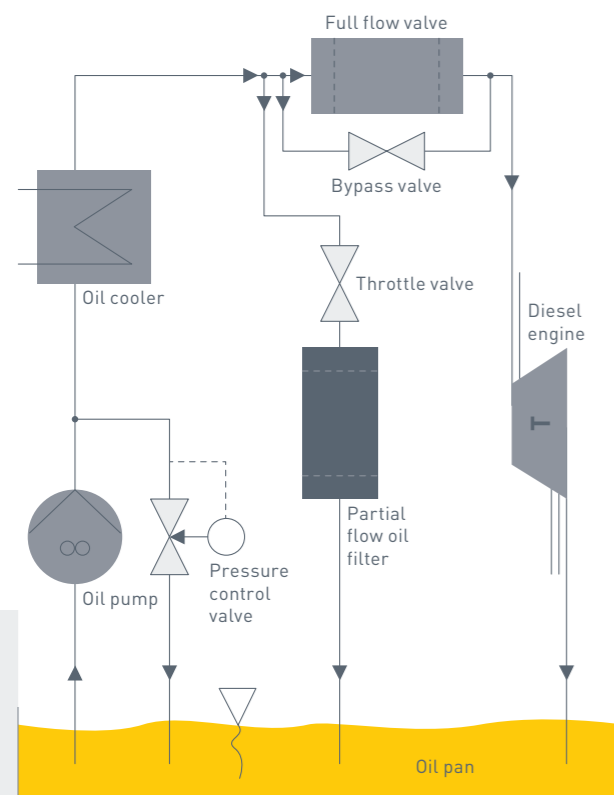
4/3-way hydraulic valve



Oil filter module for the Daimler OM 654 transverse engine

The plastic oil filter module for the OM 654 diesel engine features a heat exchanger, an integrated hydraulic directional valve, and a pressure and temperature sensor. The patented Energetic® oil filter insert guarantees optimal lubrication of the engine. Hengst offers the E159H D311 Energetic® oil filter insert to the aftermarket in OEM quality.

Depending on the engine type, an oil cooler, sensors for pressure and temperature control, valves and thermostats, a water pump and channels for oil and water routing can be integrated into an oil filter module in addition to the actual filter element. Materials such as aluminum or plastic are used for the housing. State-of-the-art aluminum die-casting and plastic injection molding techniques, which are used by Hengst worldwide, enable complex designs and provide the necessary stability while reducing weight at the same time. In addition to the actual filtration of the engine oil, the oil filter module also performs other tasks, such as cooling the lubricating oil. The oil is pumped from the oil pan into the oil filter module, passed through the oil cooler and then filtered in the oil filter. The pressure relief and non-return valve integrated in the oil filter module and the filter bypass valve play a crucial role in this process. The latter ensures an unhindered supply to all lubrication points, even if the oil filter element is clogged.



The full flow filter

Oil filtration is possible in a full flow and partial flow arrangement, as well as a combined system. Each drive component is equipped with a full flow filter. The filter is usually located directly downstream from the oil pump in the oil circuit (a filter always generates a certain pressure drop), so that the entire volume of oil flows through the filter once per circulation. As a result, the particles that could cause wear are filtered out on each pass.

The engine oil flows directly from the full flow filter to the areas of the engine that require lubrication.

The partial flow oil filter

The partial flow oil filter is located in an oil bypass flow, parallel to the full flow. Only about five to ten percent of the total oil flows in this secondary flow. The partial flow oil filter is equipped with a finer filter medium, which filters out extremely fine particles (soot particles < 1 µm) from the oil. The partial flow oil filter therefore guarantees continuous ultra-fine filtration of the oil. The task of filtration is performed by a depth filter medium. The flow rate is reduced as filter loading increases, resulting in a higher filtration grade. Partial flow filters are used in addition to the full flow filter, primarily in diesel engines with high soot input and in commercial vehicles with high mileage and long service intervals.

Spin-on oil filter

Spin-on oil filters, or spin-ons, consist of a metal housing containing a filter element, which is supported by a perforated plate inner frame. The spin-on oil filter screws onto the motor block and is designed for easy replacement. Spin-on oil filters can be used in both full flow filtration and partial flow filtration. To prevent the filter from running dry, an anti-drain valve with silicone wings is integrated in the filter.

All passenger vehicles with conventional forced lubrication are equipped with a full flow filter. In diesel engines with very high soot input, partial flow filters are used in addition (simplified depiction).

Spin-on filters often contain a filter bypass valve, which opens to allow for continuous oil flow to ensure necessary lubrication of the engine in the case of high oil pressure or a plugged filter. Although this allows unfiltered oil to enter the circuit, it ensures the supply of lubricating oil. The opening pressures are generally between 0.8 and 2.5 bar. High differential pressures can also occur during the cold-running phase of the engine at high oil viscosities or in the case of exhausted or aged and plugged filter elements.

Oil filter inserts

Oil filter inserts use screw-on fittings. The oil filter insert is replaced separately and is located inside a filter housing that is permanently connected to the engine or the oil filter module.

The Hengst filter insert consists of a filter medium sandwiched between two temperature-resistant or welded thermoplastic end plates. In modern vehicles, this filter element is made of metal-free components and is thermally recyclable.

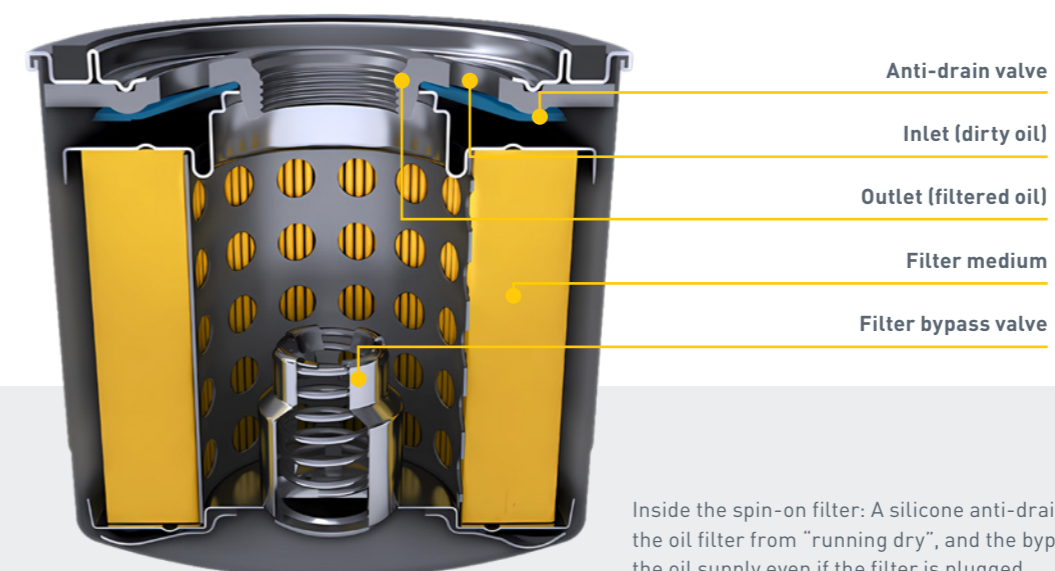
This means that insert filters can be incinerated with no residue, unlike metal spin on filters which typically cannot be incinerated.

In the case of Energetic® oil filter inserts, the inner dome can be integrated in the filter element or located in the filter housing. In another series, the valve stem and compression spring are integrated in the inner

Our Energetic® filter: 90 percent less waste compared to conventional spin-on filters, due to elimination of metal. With the Energetic® filter, only the filter insert is replaced, instead of the entire filter unit. That's good for the environment.

Info

dome. For servicing, the technician opens the oil filter housing and replaces only the filter insert. The housing and the screw-on cap are lifetime components. Due to their resistance to chemicals and wet tensile and tear strength, the service life of filter inserts used in passenger cars is between 30,000 km and 50,000 km, and in commercial vehicles 100,000 km or more (depending on the driving profile and the quality of oil used). The longer the replacement interval, the more important it is to use a quality oil filter. Replacing only the filter element and the gaskets results in a very economical and ecological solution with high-intensity utilization.



Inside the spin-on filter: A silicone anti-drain valve prevents the oil filter from "running dry", and the bypass valve ensures the oil supply even if the filter is plugged.



Spin-on fuel filters are available in standard versions and multiple special variations.



Fuel filter inserts, such as the Energetic® insert, are installed in an integrated housing on the engine. When the filter is replaced, the housing is re-used for greater efficiency.



In-line filters are available as screen and paper filters and are installed directly in the fuel line. Depending on the application, the filter housing is made of aluminum, sheet steel or plastic. The mechanic replaces the entire in-line filter when the vehicle is serviced.



Fuel filtration

For efficient long-term operation of an engine, the fuel system must be protected against contamination such as dirt, abrasion or water. Fuel filters prevent contamination from entering the injection system and the combustion chamber. Filters are designed as part of the fuel tank, spin-on or classic inline filters are used, utilizing partial or full synthetic high-performance media. Fuel filters are normally installed between the fuel injection system and the fuel tank. To meet the stringent requirements of modern engines, modern fuel filters must be able to filter out between 95 and 99.5 percent of 4 µm particles. In Germany, for example, diesel fuel purity of 10 mg/kg is achieved. In non-European countries, this limit is often exceeded by far.

Fuel filter

In a direct injection combustion engine, the fuel filter must also have a high filtration grade (in contrast to former indirect injection systems). Current regulations for reducing hydrocarbon emissions require an assembly consisting of the fuel pump, fuel filter and pressure control valve in the tank unit. These filter elements are often designed with complex geometries. Otherwise, solutions exist for some vehicle types with "simple" in-line filters, fuel filter inserts and spin-on filters. Depth filters using fuel-resistant cellulose are used to achieve required performance levels.

Differences in filtration technology for gasoline and diesel engines

Fuel filters of both drive systems must have a high filtration grade. For a long time, gasoline engines were equipped with in-line filters made of transparent plastic. In-line filters are still in use today. They are designed by the manufacturer as a replacement part or a lifetime component. The filter housing generally consists of aluminum, plastic or steel. Many modern vehicles with gasoline engines have filters that are installed in the fuel supply module in the fuel tank. These are generally lifetime components that never have to be replaced throughout the life of the vehicle. Diesel fuel filters, on the other hand, are usually replaceable filters. They are designed as in-line filters, spin-on filters or metal-free filter elements. The housings of diesel filters are made of sheet steel, solid plastic or aluminum. There are also differences in the way the fuel is supplied. While in diesel engines the fuel is injected at the start of the cycle, in gasoline engines with direct injection the main injection quantity is supplied during the compression stroke. In gasoline engines with

conventional fuel injection, the injection valve is installed in the intake pipe upstream of the intake valve. In both variants, however, the fuel-air mixture must already be formed at the time of ignition to ensure good combustion. The injection pressure in gasoline engines is lower than in diesel engines. Direct injection pressure is typically below 5 bar, while indirect injection sees pressures of between 100 and 200 bar. In common rail technology used in diesel engines, the injection pressure can be as high as 2,500 bar. This technology requires much higher pressure for the fine distribution of low-viscosity diesel fuel. High injection pressures also necessitate more stringent requirements for water separation in diesel fuel filters. Diesel filtration is therefore much more complex. As a rule of thumb: the higher the injection pressure, the cleaner the fuel has to be. Furthermore, at low temperatures, diesel fuel must be warmed by a heating system, to prevent crystallization of the paraffin in the fuel.



Fuel filtration for the D15, D20, D26, and D38 engines from MAN

The fuel service center is a five-stage filtration system with water separation throughout the entire service interval. The single stages are designed for optimal compatibility and are arranged in a pre-filter and a main filter.

Air filtration

The air filter is part of the air intake system, which is installed in the engine compartment at a location that ensures optimal air flow. The air itself is either drawn in under the wheel well or in another area with no turbulence and neutral temperature, after which it passes into the air filter box. The air filter box itself is designed for optimal and homogeneous flow of air into the filter to prevent premature clogging. The filtered air passes through the clean air duct and the mass air flow sensor to the throttle valve and into the combustion chamber.

The life of the mass air flow (MAF) sensor likewise depends on the filtration capacity of the air filter. The MAF sensor measures the mass, temperature and pressure of the filtered intake air to ensure precise control of the combustion process and the exact quantity of injected fuel. The air filter itself is generally made of paper, composite (multi-layer) media or synthetic fleece. The filter medium is often pleated like an accordion and impregnated to prevent absorption of moisture (water). The pleated structure increases the filtration area and the absorption capacity. The area and geometry of the air filter depend on the air volume required by the engine. Manufacturers determine filter sizes and filter media for each engine and define the filtration capacity. The goal is to keep the intake air completely free of foreign matter, with the lowest possible pressure losses between the air intake and the filtered air side.

In addition to filtration, the air filter also minimizes intake noise. The flow-optimized design of the overall "combustion air" system is crucial here as well.



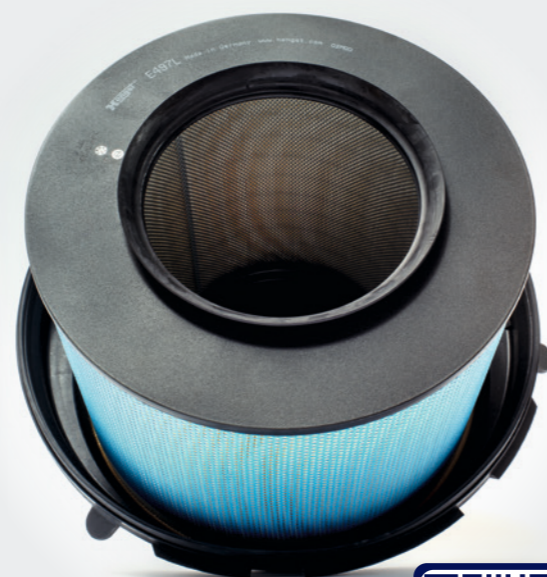
The advantages in a nutshell:

- Outstanding filtration capacity prevents wear and prolongs engine life
- A good fit and high stability ensure a 100 percent seal and long-lasting functionality
- Flame-retardant filter media prevent engine fires caused by flying sparks
- Thanks to high-quality impregnation, the filter paper remains stable and tear-resistant even in moist conditions
- Special paper embossing achieves maximum filter stability and prevents bunching of the pleats

Info

Intake air filtration for Daimler

Hengst is the development partner and main supplier of the VS30 intake air filtration system for the OM 651 four-cylinder in-line diesel engine. This variant is used in the Sprinter vehicles, which have very stringent requirements for durability and long-life performance. Hengst air filters continuously remove particulate matter from the air for efficient and reliable engine performance. In addition, they create an optimal fuel-air mixture to ensure the best possible combustion. The filter unit is additionally equipped with a flame-retardant medium.



The particle concentration in the intake air depends largely on the environment. Depending on the location, the mass concentration for a passenger vehicle in ten years can range from a few grams to several kilograms of dust. Modern engines generally have filtration grades between 99.5 and 99.8 percent (for diesel engines). If the filter also has a high dust absorption capacity, this results in a longer filter life. As more and more particles accumulate in the filter material, the air filter must be replaced. The signs of a clogged air filter are a decline in performance and increased fuel consumption.

For passenger cars, manufacturers recommend changing the air filter every 30,000 to 40,000 km or every one to two years.

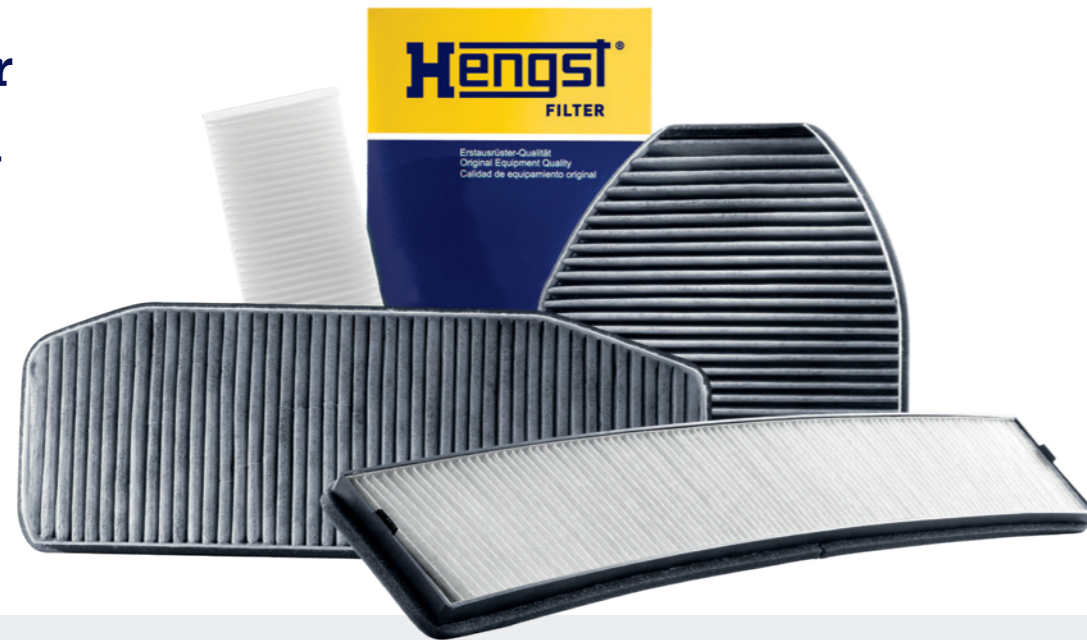
In some modern vehicles, a service reminder on the instrument display or the central screen warns the driver when its time to replace the filter. However, a service reminder is generally used to indicate increased dust exposure in commercial vehicles or construction machinery. Safety inserts are used primarily in vehicles and agricultural and construction machinery operating in dusty environments.

When the main filter is replaced, the safety insert provides protection against particles that otherwise can enter the clean air duct and the combustion chamber. Compared to the main filter, the safety insert often has a longer replacement interval.



The air filter, whether in the form of a round or plate filter insert, is the core element of the overall air intake system. Some versions have stabilizing beads or grids. Plate air filters for use in very dusty conditions have an additional fleece mat for pre-filtering.

Cabin air filtration



The purpose of the cabin air filter is to protect the health of drivers and passengers. In only a one-hour drive, the vehicle fan can draw up to 540,000 liters of air into the cabin. If the cabin air filter is not functioning properly, the pollutant concentration in the vehicle can be up to six times higher compared to the outdoor air. Fine particles, soot, pollen (allergenic substances), mold, bacteria, odors and other substances are contained in the air that flows into the cabin. An efficient cabin air filter virtually eliminates particles larger than 5 µm. In test bench conditions, Hengst cabin air filters remove 95 percent of particles with a size of 2.5 µm, according to specifications.

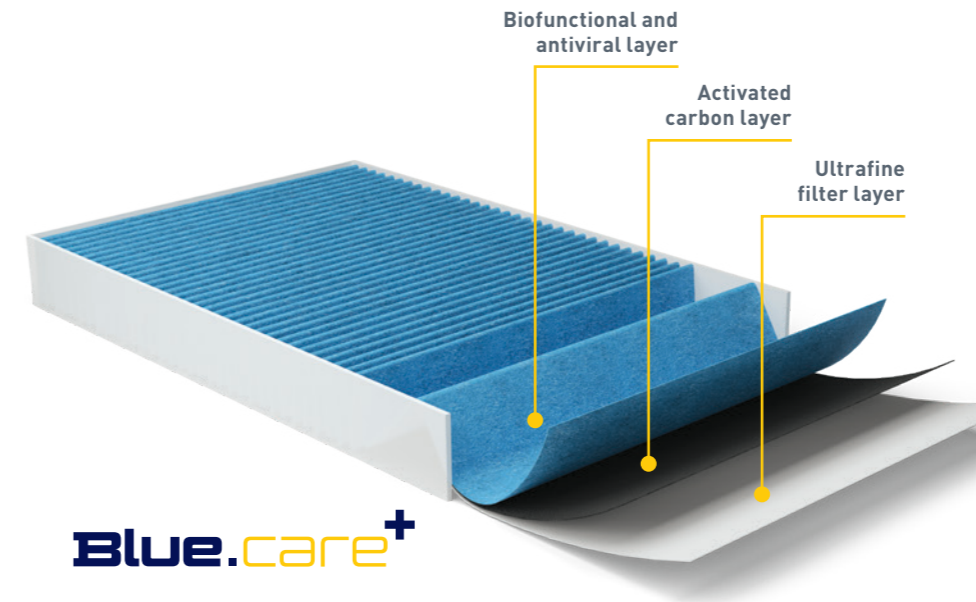
Cabin air filters must be replaced regularly to guarantee reliable filtration of the incoming outdoor air. Over time, the filter clogs as the dust load increases. A so-called dust cake forms between the single pleats of the filter. Moreover, moisture in the filtered pollutants results in the growth of fungi and bacteria. In addition to unpleasant odors, a mixture of hazardous substances flows into the cabin. Filter experts recommend replacing the cabin air filter every 15,000 km or twice a year. Cabin air filters can generally be replaced without the use of special tools.

Particulate filter (pollen filter)

The particulate filter (also known as a pollen filter) protects the vehicle's inhabitants from solid particles such as pollen and fine dust (PM 10 µm up to 99 percent). The pleated or folded filter paper of the particulate filter is made of high-performance fleece material. Through electrostatic charging, the particles are attracted by the fibers and filtered out of the air. In addition to electrostatic filtration, mechanical filtration is also used. A multi-layer fiber structure ensures that the particles adhere to the fine fibers as they flow through the filter.

Combination filter (activated carbon filter)

In addition to a pre-filter and a microfiber fleece element, combination filters also have an activated carbon layer. This granular activated carbon layer absorbs fine particles (PM 2.5 µm up to 99 percent) as well as unpleasant and toxic gases such as ozone, smog and exhaust fumes. The open-pored surface of the activated carbon absorbs odor and gas molecules like a sponge. The molecules then enter the labyrinthine channels, where they are retained. The activated carbon layer consists of natural materials, such as coconut shells.



Info

Hengst cabin air filters: from pollen filters to biofunctional filters



Biofunctional cabin air filter Blue.care+

Pollen, bacteria and mold spores in the ambient air can cause undesirable reactions in people with allergies. This can affect concentration and endanger road traffic. So-called biofunctional and antiviral cabin air filters, such as Blue.care+, bind and inactivate allergy-causing substances, or allergens, and prevent bacteria, viruses, nitrogen oxides and mold spores from entering the cabin through the ventilation system. In addition to a particulate filter layer and an activated carbon layer, the cabin air filter also has a third layer. This special biofunctional and antiviral coating has an antiallergenic and antimicrobial function to protect the vehicle inhabitants against allergens, viruses, nitrogen oxides bacteria and mold. Viruses are rendered harmless directly in the filter medium, so the filter can be changed without hesitation.

Replacement of the cabin air filter: Arguments for your garage customers

As a mechanic, recommend that the cabin air filter be replaced at least once a year. "As a manufacturer, we even recommend that frequent drivers change the filter twice a year. That is the only way to ensure effective filtration of fine particles, pollen, etc.," says Adrian Rothschild, Group Director Product Management at Hengst Filtration. Explain that the air quality in the cabin has a major effect on concentration and health. A new cabin air filter also protects the motor of the fresh air fan, as the air flow is unhindered. In addition, unfiltered air leaves an annoying grimy film on the inside of the windshield. This can result in reflections and glare. Replacing the cabin air filter also prevents unpleasant odors.

Fresh and clean air in the cabin is a guarantee for maintaining the concentration and, in the long term, the health of the driver. This is especially important in outdoor air environments containing allergens and hazardous substances.

Info

Transmission oil filtration



The transmission oil fulfills several functions in the transmission. It lubricates the contact surfaces on the gears and the running surfaces of the transmission bearings. At the same time, it cools and also protects the components against corrosion. An important task of the transmission oil in the automatic transmission is the transmission of engine torque between non-positive components, such as in the torque converter. Additives or other substances that are added to the oil during the manufacturing process improve certain properties.

These include the inclusion of foreign bodies (abrasion) or the prevention of oil foam formation. Aging additives (additive wear) can have such a negative effect on the oil that it can lead to harder and delayed gear changes in the transmission. Additive wear leads to accelerated wear on bearings and gears in the transmission. Hengst recommends changing the oil and servicing the transmission in good time.

MTF and ATF

The abbreviations MTF (manual transmission fluid) and ATF (automatic transmission fluid) are self-explanatory. ATF fluids have a higher additive content and must be replaced at regular intervals. Together with the transmission oil, the ATF filter insert must also be replaced. MTF and ATF fluids must never be mixed!

Info

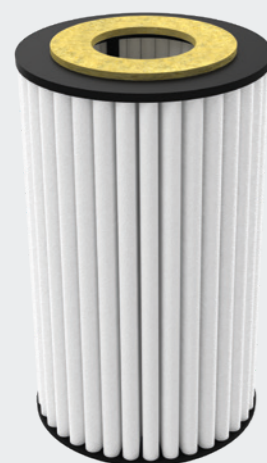
Depending on the transmission type, either suction or pressure filters are used. Automatic transmissions are generally equipped with suction filters. These compact flat filters are installed in a solid plastic housing directly in the oil pan. To change a suction filter, the oil pan is dismantled from below.

Pressure filters are used in manual transmissions and in CVT or dual clutch transmissions. In case of heightened requirements for oil purity, they can also supplement suction filters.

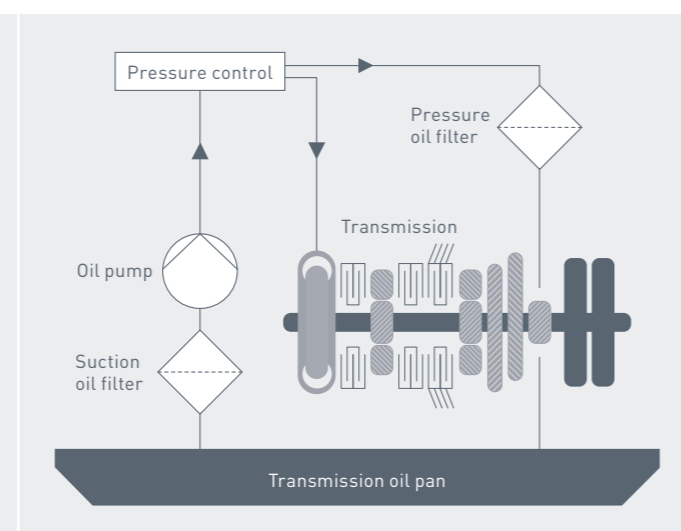
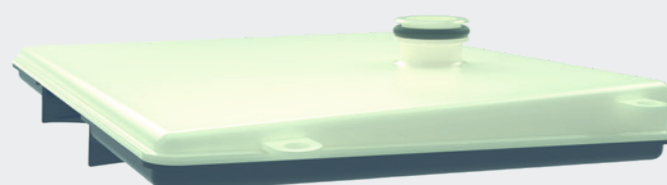
Changing / flushing transmission oil

Most automotive manufacturers specify regular transmission oil changes.

In addition, transmission oil flushing is also recommended, to remove any contaminants and to at least replace the majority of the transmission fluid. When doing so, it is important for the vehicle and the transmission oil to be at operating temperature. In addition, cleaning of the control block ensures that the entire volume of transmission oil is replaced, in order for the complex mechanism to operate properly over an extended period.



For pressure filters, it is a good idea to integrate additional functions. A classic example is integration of a flow optimized oil-water heat exchanger, to keep the automatic transmission oil within the permissible temperature range even in borderline applications.



Suction filters filter the transmission oil to provide effective protection for the pump.



New: Transmission oil change kits for automatic and dual-clutch transmissions

The new transmission oil change kits from Hengst offer a quick and cost-effective solution for maintenance. The kits provide you with a complete set with all the necessary components in one package. This eliminates the tedious task of identifying and ordering individual parts. At the heart of the kits are the high-quality transmission oil filter or transmission oil pan and the transmission oil "Made in Germany".



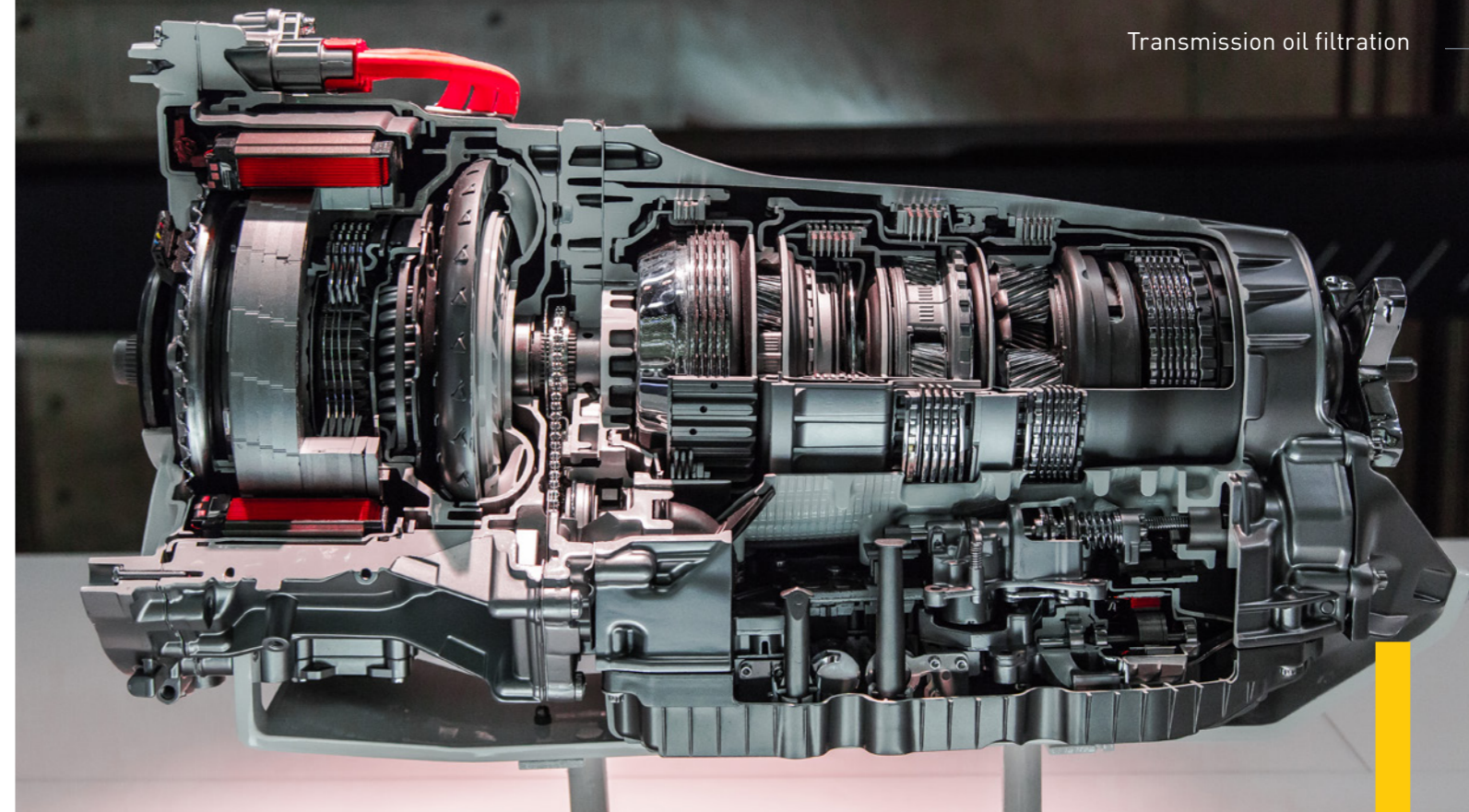
Transmission oil pans

Transmission oil pans play a crucial role in the proper functioning of a transmission. They serve as a container for the transmission oil, which is essential for lubricating and cooling the transmission.

The warm and returning oil is defoamed and cooled in the sump. The oil pan is made of either sheet metal or plastic and is often equipped with ribs for stabilization and cooling. It contains important filter elements that separate the finest particles from the transmission oil in order to protect important transmission control components such as valves.

These particles are caused by metal abrasion due to gear wear and the abrasion of the clutch linings in dual-clutch transmissions, which can shorten the service life of the transmission.

Magnets can also be installed in the transmission oil pan, which remove large metal particles from the oil.



The advantages in a nutshell:

- Mounting material included in the scope of delivery
- Many service gaskets are already pre-assembled to make installation easier
- Replace the oil pan every time the transmission oil is changed to avoid subsequent repairs and problems when refitting
- The product range from Hengst covers over 80 % of the relevant European vehicles and is constantly being expanded
- All products in the usual OEM quality

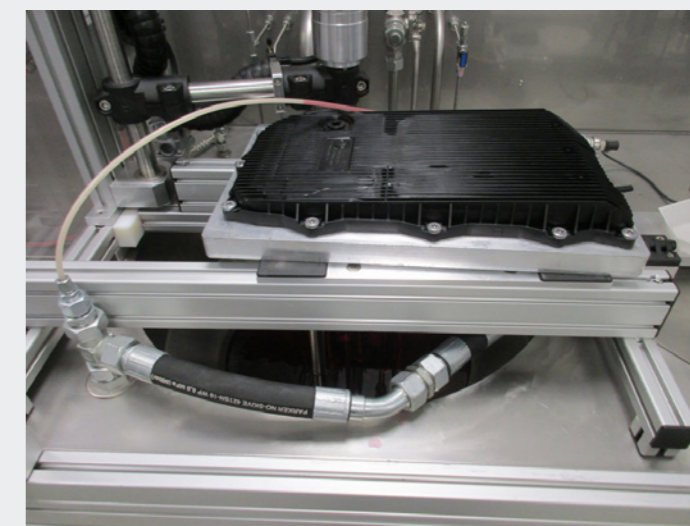
Hengst supplies OEM oil pans

Hengst supplies the 3rd generation of the oil pan for the 8HP transmission from ZF. The oil pan is equipped with a fully integrated flat filter and a drain plug for convenient servicing. The transmission oil pan with integrated suction filter is installed for example in all Audi vehicles and in selected BMW models of the 3 Series and above with automatic transmissions. Plastic oil pans, especially in combination with an integrated filtration solution, have special requirements – which we are able to meet based on many years of expertise in working with plastics. The IAM type designation is HG105H D836.



Inspected and tested in Germany

The transmission oil pans from Hengst undergo a strict inspection and testing procedure in Münster. After the patent test, the pans are first mounted on test plates to determine their accuracy of fit. The test engineers then check the functional values such as tightness, temperature resistance, filter efficiency and mechanical resilience. This meticulous process ensures that the transmission oil pans meet the highest quality standards and guarantee optimum performance of the transmission systems.



Test bench for determining filter efficiency and dust holding capacity

Hydraulic filtration

Hydraulic fluid is essential for trouble-free operation of every hydraulic system – whether it is a high-power excavator or a small compact skid loader. If a system fails, contaminants in the fluid are usually the cause.

Types of fluids

Depending on the application, water-based or oil-based hydraulic fluid is used. It's important to choose the right hydraulic fluid for the application, choosing from natural/biological, synthetic or low flammability characteristics.

Agricultural machines often use biodegradable hydraulic fluids, while heavy machinery is more likely to operate with synthetic petroleum products. Regardless of the chosen hydraulic fluid, the same type should always be used, and products from different manufacturers should never be mixed. The fluid should also be checked regularly to determine whether it contains any water or contaminants.

Types of contamination

- **Solid particles** can cause initial damage from "seizing", impair the control and regulation behavior, cause component wear and, in the end, failure of components. These effects can be detrimental to machine availability.
- **Liquid contamination** (usually water-free and dissolved) causes corrosion and wear, and can negatively affect the viscosity and lubricating properties of the fluid. In addition, oxidation can impair the filtration capacity, shortening the filter life. This, too, can affect machine availability.
- **Gaseous contamination** in the form of air can cause foaming in the fluid, resulting in power loss, pump damage, oil oxidation and reduced machine availability.

Main causes of contamination

- **Built-in contamination** can be caused by foundry sand, dust, rust, residue from production such as welding residue, metal chips, paint or dye particles and cleaning residue.
- **Ingressed contamination** consists primarily of particles in the ambient environment that penetrate the system via piston rods, labyrinth seals or ventilation components. Contamination can also enter the system when oil is added.
- **Generated contamination** consists of fine metal particles caused by abrasion and erosion, abraded seals, chemical corrosion, oil aging products, oxidation residue and substances that are not soluble in oil resulting from mixing of oil. It is important not to neglect the factors that can cause contamination, and to check and change the hydraulic fluid regularly to prevent damage and system downtime.

Different types of filters are used in hydraulic filtration that provide for optimal filtration of hydraulic fluid. They include suction filters, pressure filters and return filters.

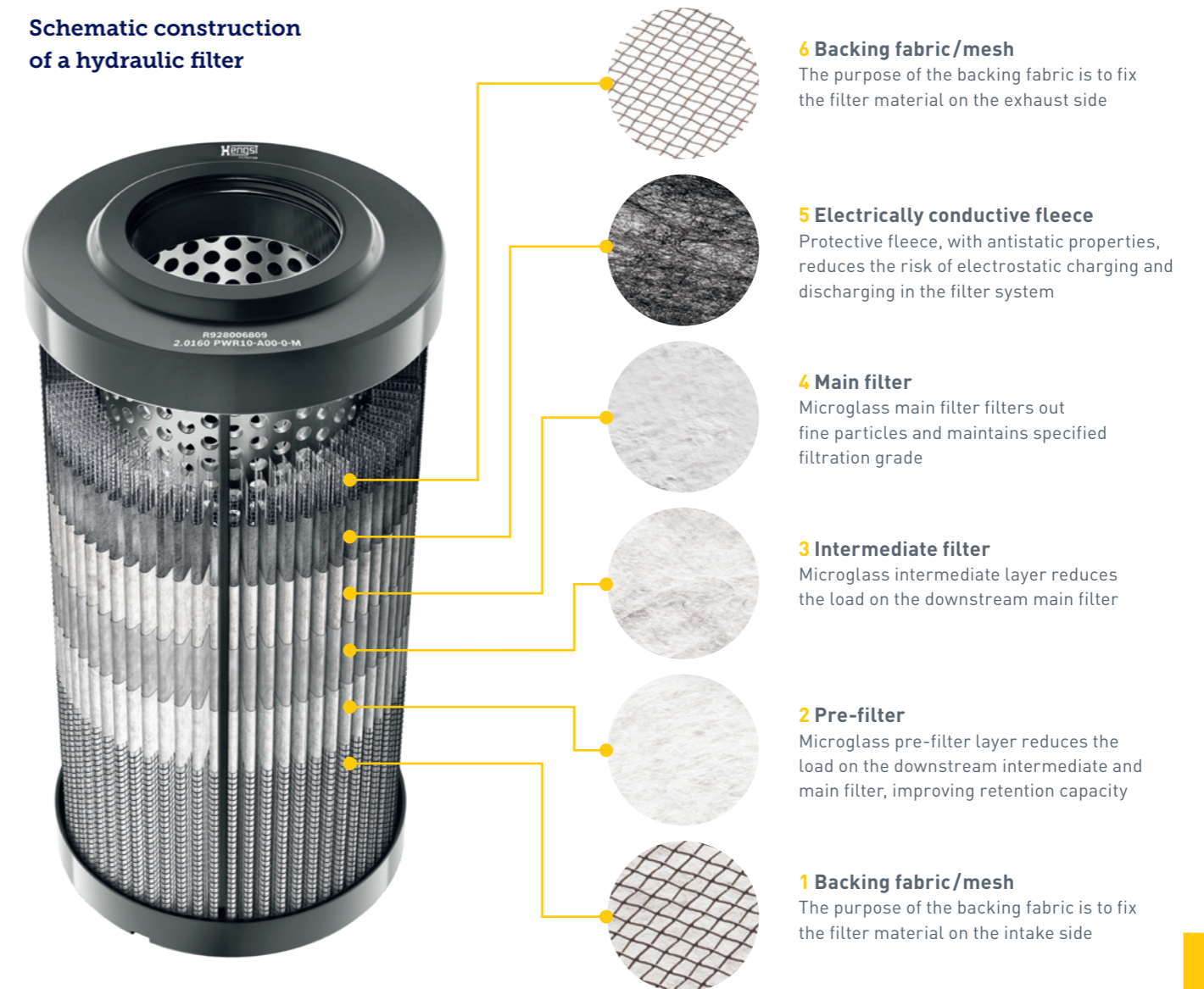
- **Suction filters** are installed in the suction line and filter the oil directly from the tank to protect the hydraulic system against wear. They remove coarse particles from the oil and therefore increase the life of the system.
- **Pressure filters**, on the other hand, are installed in the pressure circuit of the hydraulic system and filter the oil before it reaches the hydraulic components. These components include, the pressure connection for the pump or the control or regulating unit to be

protected against contamination. Pressure filters remove finer particles from the oil and therefore achieve higher purity than suction filters.

- **Return filters**, which are located within the return flow of the hydraulic system, filter the oil from the hydraulic components before it flows back into the tank.

All three filter types are crucial for effective hydraulic filtration and should be serviced and replaced regularly to ensure maximum filtration capacity and optimal performance of the hydraulic system.

Schematic construction of a hydraulic filter



Special applications



Air dryer

Air dryers use special granules to remove moisture from compressed air. This prevents corrosion of the control and regulating valves of the brake system and air suspension system. Air dryers are used primarily in commercial vehicles with very high braking pressures.



Air dryer for commercial vehicles

Coolant filter

The cooling system on the combustion engine is essential for a long engine service life. The waste heat from the combustion engine is transported via the coolant to keep the operating temperature in the optimum range and prevent overheating.

The coolant circulates in the cooling system via cooling ducts in the engine block and in the cylinder head. Coolant filters are used to keep the channels in the cooling system free from contamination and deposits. They help to effectively filter dirt particles out of the coolant. A basic distinction can be made between filter inserts and spin-on filters, which are available with and without chemicals.

Coolant filters without chemicals are used to remove suspended particles and dirt particles from the cooling system. The use of a filter without chemicals is recommended if long-life coolants are used that already contain additives that are not commonly used or if other additives are added to the system.

Coolant filters with chemicals remove suspended particles and dirt particles and also add additives to the cooling circuit. These coolant filters are used to prevent an under-concentration of protective additives in the system if these additives are not supplied to the system via the coolant.



A coolant filter insert (left) compared to a coolant filter with screw connection

Blue.maxx – the smart fuel filtration system

Fuel filters are indispensable in protecting the injection system and engine against contamination. Fuel grades can vary widely around the world, yet filters need to reliably remove water and even the tiniest particles, regardless of the conditions.

The Hengst Blue.maxx fuel pre-filter is the smart solution for commercial vehicles, as well as agricultural and construction machinery.

Technology you can count on and leading edge components make Blue.maxx a high-performance, long-lasting and ecological fuel filter. Good reasons for the fuel filtration system of the future:



Manual fuel pump

- High delivery rate and high suction lift with low application of force
- Piston principle for maximum functional reliability
- Flow-optimized design minimizes power losses

Energetic® filter insert

- What you see is what you get – Visible filter insert ensures optimal quality control
- Eco-friendly service due to metal-free and fully recyclable Energetic® filter insert
- Special design prevents incorrect use and installation of inferior counterfeits

Filter housing

- Intelligent design with integrated water collection area
- Blue.maxx 450 has a window for convenient checking of the fill level
- User-friendly maintenance requiring no special tools
- Different connection options for flexible installation

Further advantages

- ECE type approval exists for relevant components
- Supplementary mounting at virtually any location
- The Blue.maxx extends the life of the main filter system
- High level of water separation protects injection system against corrosion
- Also suitable for use with biodiesel
- Fire resistance according to DIN EN ISO 10088 for small marine applications

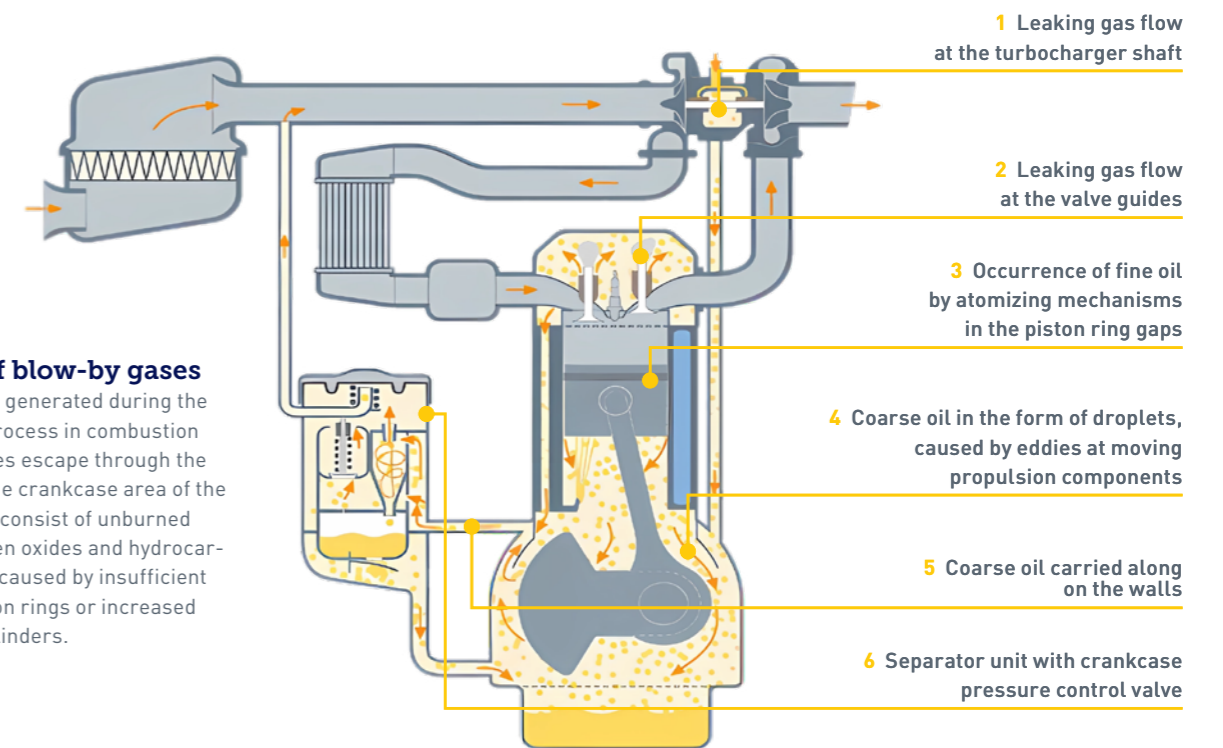
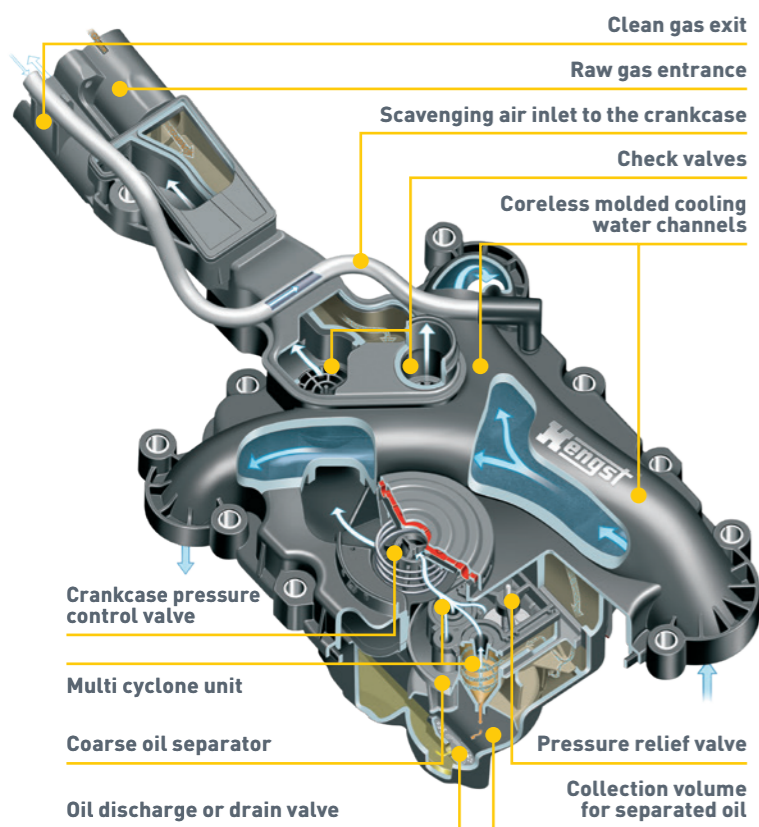


Crankcase ventilation



Problems with engine performance, rough idling, increased fuel consumption – surprisingly often a defect in a rather inconspicuous component is the cause: the oil mist separator in the crankcase ventilation system.

It is not uncommon for customers to come to the workshop with their vehicle and can only describe one symptom that worries them – usually not just yesterday. The car no longer “pulls” properly, the idling is somehow rough or fuel consumption has increased noticeably recently. As such changes do not occur overnight, but gradually, the vehicle owner often only notices them late. Therefore, quick action in the workshop may be required before serious damage to the engine occurs. “Diminishing engine performance can have many causes, which is where the professional in the workshop comes in. Especially with modern engines, the crankcase ventilation should always be checked, as oil deposits and the resulting coking can often be the cause,” says Ronald Svensson, Technical Trainer at Hengst. Hengst points out that in many cases a defective oil mist separator in the crankcase ventilation can be the cause of the symptoms described – and in the worst case can lead to expensive engine damage.

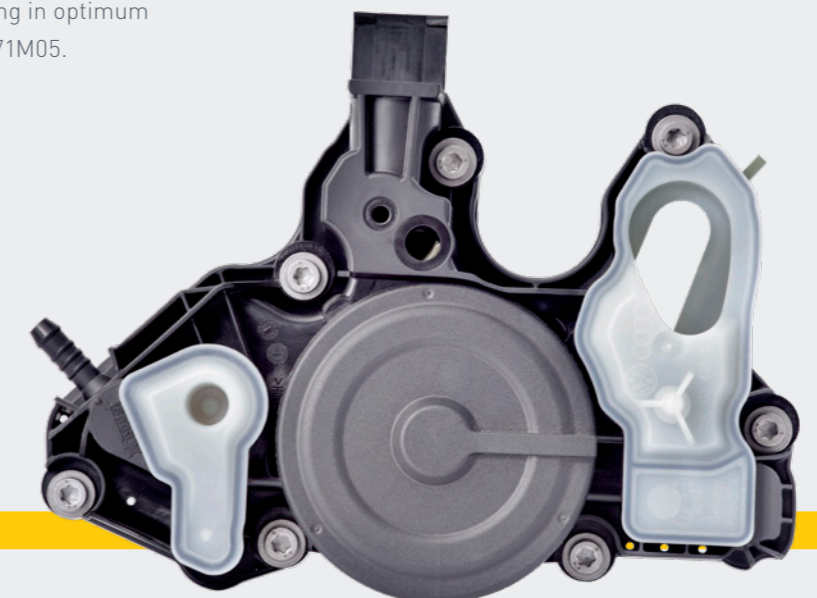


Generation of blow-by gases

Blow-by gases are generated during the fuel combustion process in combustion engines when gases escape through the piston rings into the crankcase area of the engine. The gases consist of unburned fuel, water, nitrogen oxides and hydrocarbons. They can be caused by insufficient sealing of the piston rings or increased pressure in the cylinders.

Hengst as OE series supplier for crankcase ventilation systems

Hengst is a series supplier for the crankcase ventilation of the VW EA888 Gen3 engines, which were specially developed for the Audi A4 and VW Golf. The module is characterized by several special features: It is mounted on the cylinder head cover and has a cyclone and a pressure relief valve. An integrated pressure regulator ensures precise control of the system. In addition, non-return valves for full and partial load venting are integrated, resulting in optimum functionality. The IAM type designation is AS371M05.



Among other things, crankcase ventilation systems ensure that blow-by gases, which are unavoidably produced during the compression process of the fuel/oxygen mixture in the engine, are separated. The blow-by gases laden with oil mist are thus no longer released into the environment without being cleaned. The separated oil is fed back into the oil circuit and the combustion gases (crankcase ventilation) into the intake tract.

Technical inspection & simulation

Modern filtration systems must meet extremely stringent requirements for quality, durability and filtration performance. At Hengst, extensive technical tests and simulations in the early development phase ensure that all criteria are met – while simultaneously reducing development times to speed up the start of production.

Filtration systems in motor vehicles are subjected to high loads, extreme temperature fluctuations and vibrations in daily operation. And yet, they must meet

ever-increasing standards of quality. Further challenges are posed by development requirements, such as reduced installation space and lightweight construction.

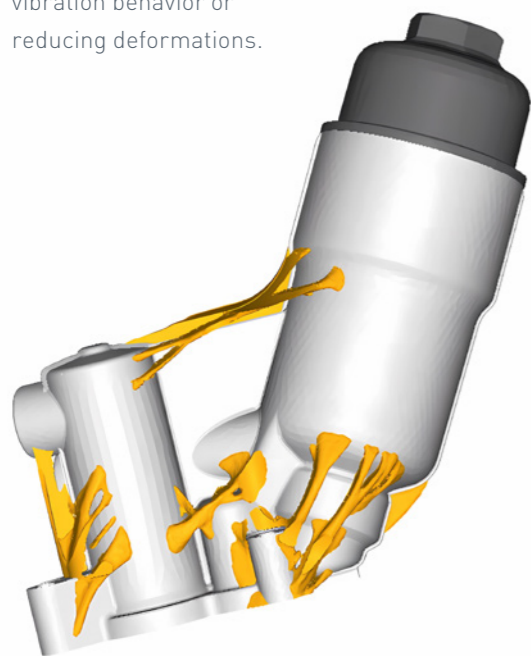
To fulfill the requirements of our development customers in the automotive industry, Hengst employs state-of-the-art simulation processes. This makes it possible to produce and market leading-edge products with short development times and high reliability.

***The CFD (computation fluid dynamics) simulation is used in the design and optimization of diverse components. Different methods are used for simulation of fluid dynamic applications.**

Info

1 Component optimization

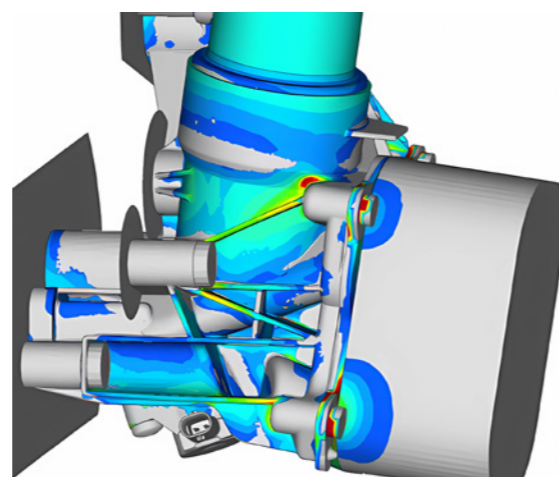
Component optimization is implemented in early development phases as the basis for the ultimate component design. All standard simulation and calculation methods are used in the engineering of our parts. This simulation process is also key in achieving development goals such as maximizing rigidity, optimizing vibration behavior or reducing deformations.



The optimization result, shown in orange, serves the design engineer as a basis for reinforcement measures

2 Structural simulation (FEM)

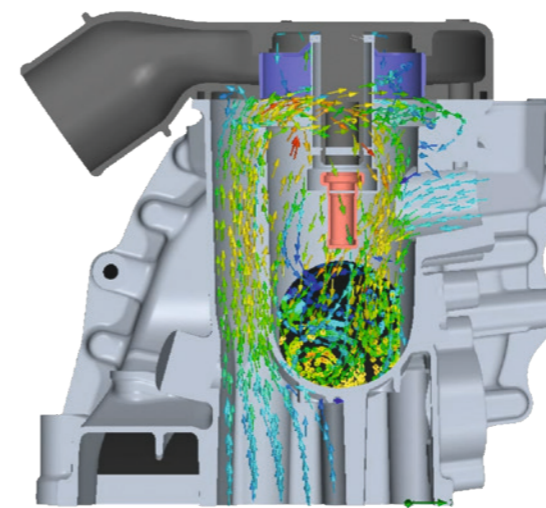
Hengst applies the finite element method (FEM) for numerous structural simulations, to obtain production-relevant data for further development of the constructed parts. During the FEM, components such as assemblies and single parts are measured to determine static and dynamic pressures, temperature changes, external forces or vibrations, and to analyze tensions. This makes it possible to predict the behavior of different materials (cast aluminum, steel, fiber reinforced plastic, polymers) in different operating states.



Fatigue test of an oil filter module under dynamic pressure load

3 Computational fluid dynamic (CFD)*

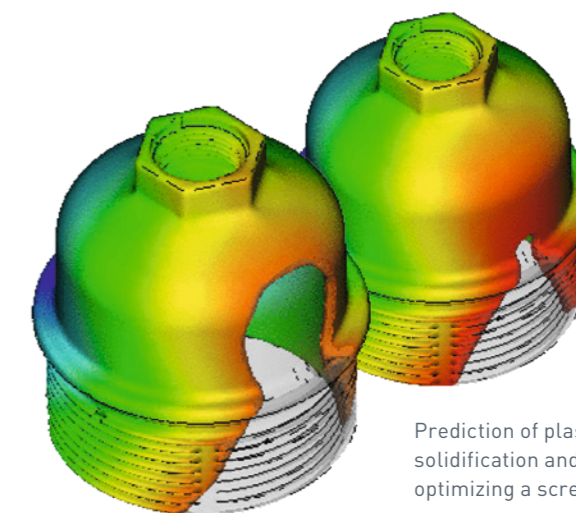
Computational fluid dynamic (CFD) simulations analyze the behavior of the filter in practical use and are therefore among the most important processes. The CFD calculates differential pressures and pressure losses, and identifies flow resistance. Optimizations that are derived from the results of the flow simulation in turn boost the efficiency of the fluid management system. It is also possible to determine flow-related forces on internal components of the module, such as valve slides.



Optimizations of flow behavior with a modified thermostat housing to reduce pressure loss

4 Process simulation

Process simulation in the development phase ensures high quality and efficiency in later series production – both for injection molding and aluminum die-casting processes. Injection molding simulations provide reliable information for the product design concept. On this basis, the mold concept and process development for large-scale production are optimized. Aluminum die-casting simulations likewise optimize product development and reduce the time needed until series production. The focus of these processes is always on the high standards placed on Hengst filtration systems by both us and our customers.



Prediction of plastic mold filling, solidification and deformation for optimizing a screw-on cap

Oils and lubricants

Oils and lubricants perform numerous functions in motor vehicles to ensure safe operation and long life of the drive system. They not only reduce friction between mechanical components, but also contribute to more efficient cooling and improved protection against corrosion. They seal and clean by binding intrusive particles and therefore reducing wear in engines and transmissions.

Vehicle owners should therefore insist on the use of high-quality, suitable oils that comply with the relevant standards.

Approvals for the particular use provide for transparency and orientation; in addition, the quality criteria of the ACEA (European Automobile Manufacturers' Association) and API (American-Petroleum Institute) should always be observed.

The provisions of the EURO standards, which define emissions levels for fuel-operated engines, are likewise relevant. For example, an engine oil developed for the EURO3 standard cannot be used for EURO6 engines. The use of incorrect or inferior oils can cause engine damage and clog the exhaust system.



High-quality oils from Hengst

Hengst engine oils, transmission oil and coolant fluids fulfill the high standards of quality for original equipment. The products are manufactured entirely of high-quality base oils and additives. This results in high-quality products that ensure the reliable supply of oil to engines under all operating conditions.

Info



Sustainable lubricants

Blue.balance sustainable oil from Hengst is based on a combination of high-quality regenerated base oils and additives. This special blend not only provides excellent performance and protection for the engine, but also contributes significantly to reducing the environmental impact. Compared to base oils from primary production, regenerated base oils cause only around 35% of CO₂ emissions and are therefore a more environmentally friendly alternative. And "Made in Germany".

Blue.balance

P3 half mask

Protection classes

Particle filters are divided into three protection classes: P1, P2 and P3. This classification depends on the maximum exceedance of the occupational exposure limit (OEL). The P3 half mask from Hengst is suitable for filtering dust, smoke and aerosols from the air that exceed the permissible OEL by up to 30 times.

Application areas

The P3 half mask from Hengst should be worn during activities involving harmful and carcinogenic oil- and waterbased dusts, biological agents in risk groups 2 and 3 or CMR substances. These occur with

- Grinding, cutting, drilling: Hardwood, chromates and lead-based paints, anti-fouling paints, high-alloy steel / stainless steel



- Asbestos work (up to 100,000 fibers /m³)
- Waste sorting
- Power plant work
- Working with pesticides (aqueous solutions)
- Handling viruses, diesel soot / smoke
- Handling brake dust



- quick release strap
- anti-allergy mask
- exhalation valve
- leak test port
- replaceable filters
- pre-filter
- grille fins
- grille guard

P3 replacement filter – with standard medium

- Set of two replacement filters
- Highest filtration efficiency – 99.99% of airborne particles up to 0.3 microns are filtered out
- Filter material ensures low breathing resistance
- Long service life of the filter element

P3 replacement filter – with activated carbon medium

- Set of two activated carbon replacement filters additionally keeps away unwanted odors
- Highest filtration efficiency – 99.99% of airborne particles up to 0.3 microns are filtered out
- Filter material ensures low breathing resistance
- Long service life of the filter element










PortaCount – Adapter S10L

The adapter allows fit testing with a PortaCount device. The test evaluates the seal between the respirator and the face, identifies leaks, and shows whether a mask provides the necessary protection. Here, the number of particles in the atmosphere is measured in comparison to the number of particles in the mask.



Das Original.

Hengst type designation.

- Filter type**
- Oil 
 - Transmission oil 
 - Hydraulic oil 
 - Fuel 
 - Water 
 - Air 
 - Cabin air 
 - Urea 
 - Others 



Search conveniently, find what you need instantly.
Quickly to the right filter – in the online catalog.
www.hengst-katalog.de



- Product group**
 - AS _____ Separator
 - E _____ Filter insert
 - EAS _____ Filter insert separator
 - EG _____ Filter insert transmission
 - EY _____ Filter insert hydraulic
 - H _____ Complete filter
 - HG _____ Complete filter transmission
 - HY _____ Complete filter hydraulic
 - S _____ Special part
 - T _____ Dryer box
 - Z _____ Centrifuge
- Serial number**
- Product type**
 - F _____ Free-spin centrifuge
 - H _____ Oil filter main flow
 - HN _____ Oil filter main/side flow
 - K _____ Fuel filter
 - KF _____ Fuel filter felt
 - KFR _____ Fuel filter felt pipe
 - KP _____ Fuel filter paper
 - L _____ Air filter
 - LB _____ Air filter cabin air bio functional
 - LC _____ Air filter cabin air activated carbon
 - LI _____ Air filter cabin
 - LS _____ Air filter safety insert
 - M _____ Mechanical
 - N _____ Oil filter side flow
 - S _____ Filtration with sieve mesh
 - SF _____ Filtration with sieve mesh
 - U _____ Urea filter
 - W _____ Spin-on filter
 - WD _____ Spin-on filter pressure-resistant oil
 - WDK _____ Spin-on filter pressure-resistant fuel
 - WF _____ Spin-on water filter
 - WK _____ Spin-on fuel
- Variant**
- Product suffix**
 - D _____ Gasket kit
 - 2/-3/... _____ Multiple set
 - R _____ Right hand drive



Disposal of oil filters

Today, manufacturers are increasingly installing eco-friendly oil filter modules in vehicles. These modules consist of a metal or plastic housing, which is permanently connected to the engine, and a separate filter insert. The metal-free oil insert is replaced during an inspection and is eventually incinerated in a waste incineration plant. All that is left of the filter is ashes. The filter module remains on the engine for the life of the vehicle; the mechanic only replaces the Energetic® filter insert.

In addition to used oil, a garage accumulates numerous spent oil filters and oily rags every day. Disposal companies and also disposal partners of oil manufacturers provide car dealerships and garages with the necessary and legally compliant collecting containers. The waste catalog code AVV 15 02 02/Regulation on the European Waste Directory (AVV Waste Directory Regulation) applies in this regard. Furthermore, these companies have special vehicles for safe transport of the waste from the garage. The waste is treated and recycled in the disposal companies' facilities. Used fuel filters likewise contain fuel residue and must be collected and disposed of properly. Air filters and cabin air filters, on the other hand, can be disposed of with the regular household trash.

However, if they are contaminated with oily substances or other chemicals, for example due to defects or leaks in the intake tract, they must also be disposed of separately.

Absorbing and filtering materials, including oil filters, as well as wipes and protective clothing contaminated by hazardous substances, must be stored in specially designed containers, and collected and disposed of by specialized companies.

Info

Protection against counterfeits

Someone recently encountered more than 3,500 oil filters and fuel filters, all with Hengst branding – the problem: they were all counterfeits. Sea cargo from Ningbo, China, destined for the harbor in Beirut, Lebanon. Fortunately, the customs officers in Malta discovered the container during a stop at the Mediterranean island and identified the counterfeits as such.

Such counterfeits are becoming more and more common, especially in European countries – but they are also discovered time and again. Such as here in May 2022 in the harbor in Malta. As a consequence, the brand owner is involved in costly legal proceedings and, ultimately, the products are usually destroyed. This may seem absurd from the point of view of sustainability, but it is painfully necessary. “Customs, the courts, and we ourselves as an enterprise have the interests of all manufacturers and the safety of consumers at heart. No one can guarantee the functional safety and quality of these counterfeits. And ultimately, the use of these filters could cause damage to the engine,” emphasizes Frank Mendel, Director of Property Rights at Hengst Filtration.

Of course, that is why Hengst protects its products with patents and trademarks, registers the brands with the customs authorities and ensures enforcement of these rights against product pirates. For decades, the Hengst brand has been the hallmark of proven OEM quality. OEM quality is absolutely necessary – whether in Münster, Malta or Beirut.

Quality counts – counterfeits and the consequences

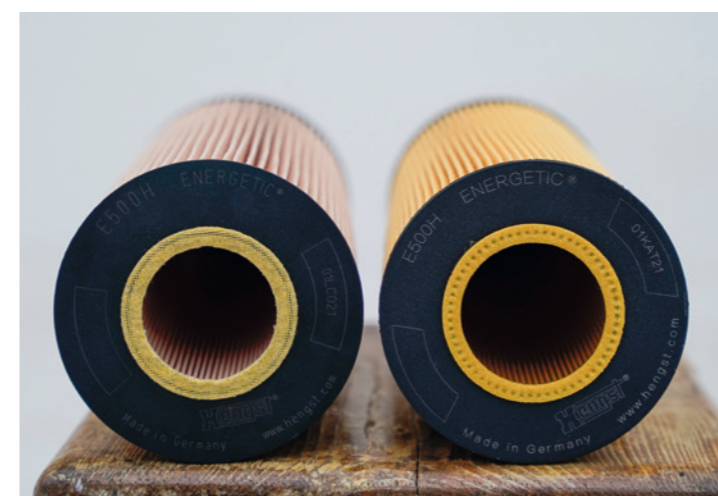
To perform efficiently for a long time, motor vehicle engines need high-quality filtration systems. Blatant counterfeits, of inferior quality and sometimes even non-functional, drastically increase the risk of premature wear. The consequences include premature corrosion of associated drive components, abrasion, insufficient lubrication, and the risk of engine damage. Some characteristics of an inferior oil filter are critical deformations, media penetration or deformed end caps.

It is also worthwhile to purchase high-quality fuel filters. The consequences and characteristics of inferior fuel filters include particles, abrasion or erosion,

increased fuel consumption, up to 40 percent drop in performance, or total failure and even severe engine damage.

Inferior air filters also pose an insidious risk. Unfiltered pollutants and toxins find their way directly into the combustion chamber. Experts recognize these inferior filters due to insufficient impregnation, reduction of the filter area and possibly complete loss of filtration.

Quality is also important when choosing a cabin air filter. The consequences of inferior cabin air filters are poor air quality, combined with fatigue and loss of concentration, as well as lack of protection against pollen. Those who are sensitive can experience allergic reactions.



How do I protect myself against counterfeits?

1. Know the company
2. Know the brand
3. Know the product
4. Know your retail partner
5. Know the market price

A Hengst oil filter (left) compared to a counterfeit (right)



SCAN ME



Nowadays, it is often very difficult to recognize counterfeits: Besides the filters, the packages are adroitly copied, including test marks and codes, that it is hard to tell them apart from the original.

Insist on high-quality products and a reliable supply source. Low-priced products in what appears to be the original packaging should make you suspicious.

If you have legitimate doubts, contact the manufacturer. Workshop customers who bring their own filters must at least be made critically aware of any counterfeits.

Info

Filtration in commercial vehicles

Commercial vehicle filters are subject to high loads, due to the higher mileage and longer service life of the vehicles. In addition, drivers of commercial vehicles are often confronted with different fuel and oil qualities on an international level. The supply of replacement parts is not always optimal. All the more important that the filtration systems function reliably. This also applies to agricultural and construction machinery with very high exposure to dust and dirt.

Oil filters

Commercial vehicles are generally equipped with full flow and partial flow filters (upstream and downstream of the low-pressure pump). The full flow filter cleans the entire volume of oil once per circulation. The partial flow filter filters five to ten percent of the oil in a separate bypass circuit, during which ultra-fine particles

are filtered out. The purpose of the partial flow filter is to prevent premature aging of the oil. For example, the full flow filter is not often designed to filter out soot particles on its own. The Energetic® stack filter is the current version of oil filters for use in commercial vehicles. The filters can withstand a pressure of 17 bar, which is the equivalent of 173 tons. Up to 390 liters of motor oil are pumped through the filter every minute. Why stack filters? Special intermediate plates, so-called stack elements, shorten the fold within the filter element. That increases the stability and improves the differential pressure behavior. It also enables a higher opening pressure of the filter bypass valve, reducing the amount of unfiltered oil that reaches the clean side of the system.

Fluid management modules

Commercial vehicle manufacturers strive for functional integration with minimal requirements for installation space and weight. A compact and cost-effective fluid management system is achieved with a module housing that uses interfaces from the various fluid circuits, such as oil, fuel or coolant, with additional functional integration.

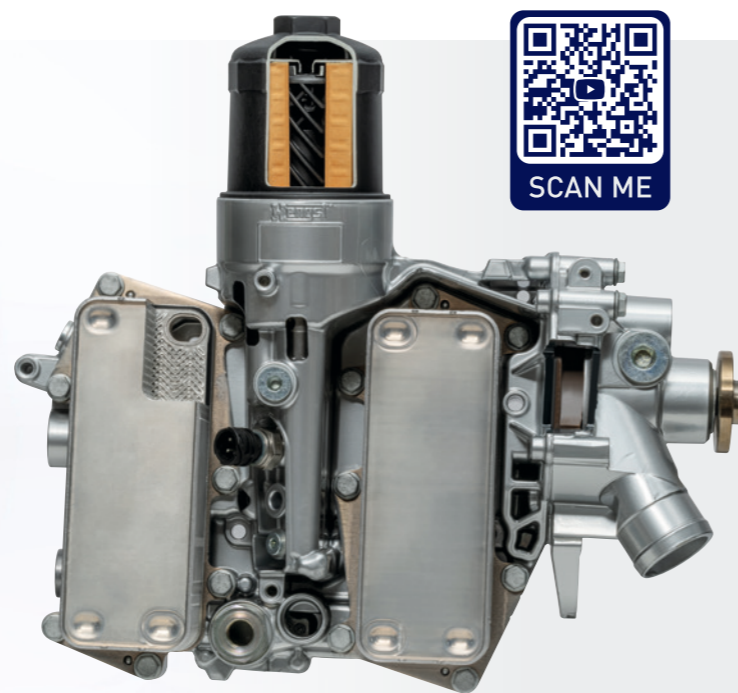
One example is the new oil coolant module from Daimler. With an optimized stack filter, the module is used in the engine of the Cascadia Freightliner, for example, which according to Daimler is the top-selling long-distance truck in the USA. The module integrates multiple functions comprising oil filtration, oil-water heat management, a water pump and, unlike the previous model generation, an oil pressure regulating valve.

By applying smart interface integration, Hengst was able to reduce the number of parts to a minimum. Even the oil thermostat has been incorporated directly into the housing. Overall, the reduction in parts has made the module ten percent lighter than the predecessor model.

The topology optimized design also ensures more robust protection against pressure and pulsation, as well as 30 percent better differential pressure. The extremely low temperatures that dominate the winter months in certain parts of North America cause the consistency of the engine oil to turn exceedingly thick and viscous. When it impacts the filter, this highly viscous oil generates an enormous differential pressure (Delta P). The latest generation of Hengst stack filters achieved a significant increase in the oil differential pressure. This causes the filter bypass valve to open later, resulting in a considerable boost in filtration performance.



The Energetic® stack filter was first used in the HDEP series (Heavy Duty Engine Platform) series from Daimler-Trucks



Oil filter module for Deutz with Energetic® filter insert E470H D28 or E470H01 D28 for an extended service interval



The fluid management module for MX-11 engines from DAF with the Energetic® 7 oil filter E829H D366 for DAF commercial vehicles XG, XG+, XF II, XDC, XFC and CF



Fluid management module for Daimler Truck with the Energetic® insert E523H D373

Hengst services

Hengst online catalog

Fast orientation in the online catalog

With its countless replacement filters, the online catalog at www.hengst-katalog.de creates transparency in your workday. The most outstanding feature of the catalog is the innovative search function:

The central search field lets you search based on diverse criteria, such as manufacturer, model, series, year, Hengst type or engine code. While the search term is being entered, the system automatically suggests suitable results, which can be selected with the mouse – a one-click search that delivers accurate results. In addition to the quick search, there is also an “Advanced search” function that allows a directed search by defined search fields, or which can be used to narrow down existing search results.

The Hengst online catalog is available in six continent versions and 14 languages.






Click here for the online catalog



A strong range

For the Independent Aftermarket, Hengst offers a complete range of filters for all common engine types. More than 3,000 filter products for passenger cars, commercial vehicles, agricultural and construction machinery, as well as for marine applications satisfy diverse requirements: Oil filters, fuel filters, air filters, cabin air filters, transmission oil filters and custom-tailored filters ranging from hydraulic oil filters to oil filter centrifuges.

-  > 2,000 filters
> 34,500 vehicle models
-  > 750 filters
> 27,900 vehicle models
-  > 1,150 filters
> 34,700 vehicle models

Hengst oil finder

The new Hengst oil finder

The new Hengst oil finder will help you find the right lubricants for a particular vehicle type, fast and easy.

The manual search for a particular vehicle returns the relevant data sheet, which can then be downloaded as a PDF.



Click here for the oil finder



HENGST.garage: The new YouTube channel with information for professional mechanics

Our new YouTube channel for the aftermarket offers useful tips and information – in a compact, entertaining format and always up to date. The videos provide product presentations, technology trends and installation instructions for passenger cars, commercial vehicles, and agricultural and construction machinery. The goal is to give you real added value and support in your daily work. That’s why products contain direct links to our online catalog and the TecDoc catalog, for example. The videos are available with German audio and English subtitles.



Falsches Ersatzteil?
Nicht bei HENGST!



Ölfilter-Einsatz E123H01
Scania G, P, R und T

HENGST.garage

It's best to subscribe to the YouTube channel. Because a new information video goes online every two weeks!



Click here for the YouTube channel

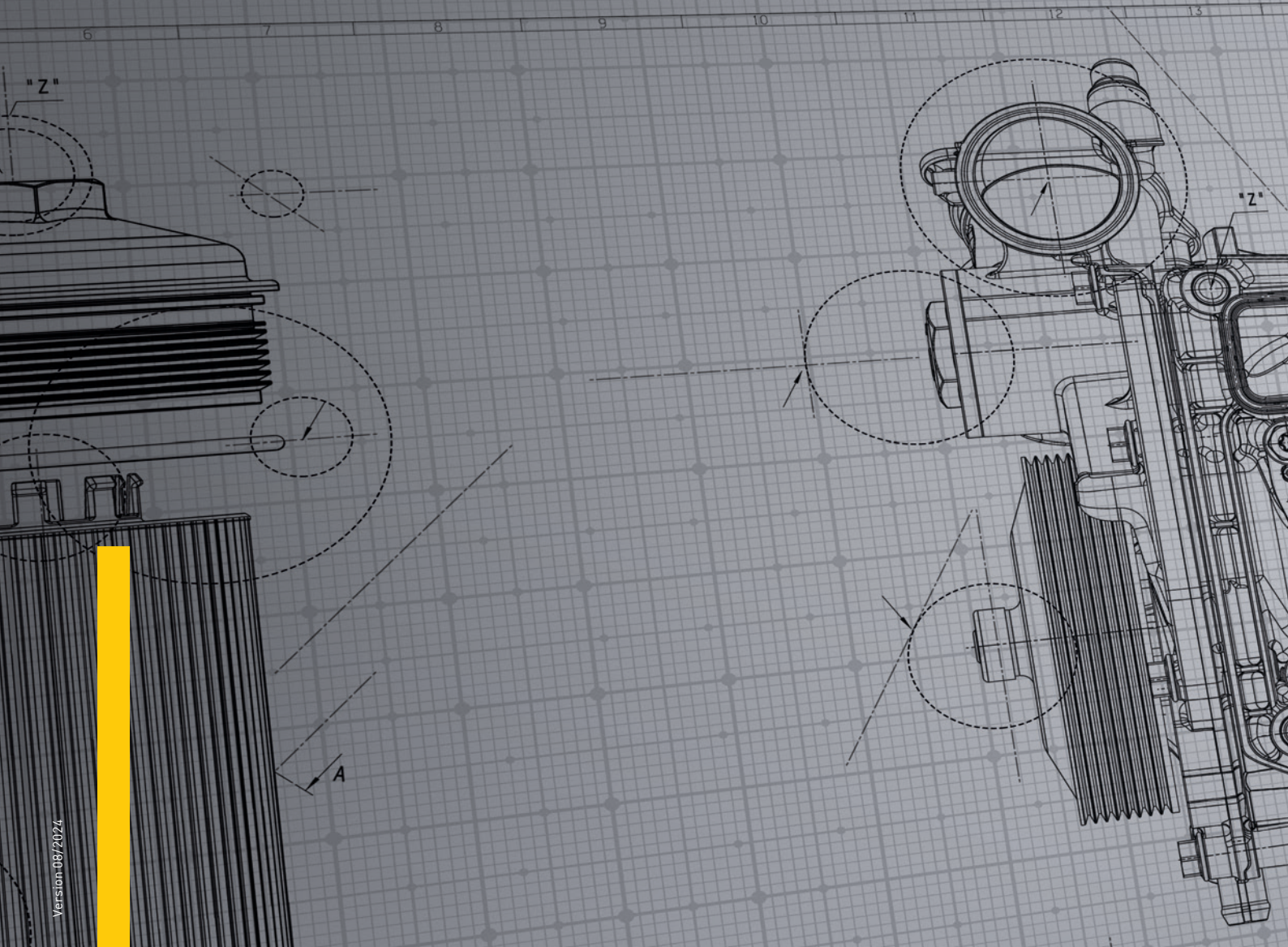
Hengst newsletter

The new newsletter for the independent aftermarket

EDiscover our new IAM newsletter: stay informed about the latest products, pioneering technologies and get exclusive insights into the filtration industry.



Click here for the registration



Version 08/2024

purifying our planet



Hengst SE

Nienkamp 55-85 • 48147 Münster • Germany

Telephone +49 251 20202-0

info@hengst.de

hengst.com

Hengst
FILTRATION