Bodyguard for the engine: PC and HCV filters from Bosch
Bosch – A strong partner in filtration business

Satisfied customers, little effort required for warehousing and ordering, consistent use of the latest technologies – numerous USP stand for Bosch filters:

- Safety thanks to first-class product quality
- Complete range containing more than 2,000 filters from a single source
- Market coverage of 95%
- Updated product range with more than 200 new additions each year
- High availability of goods, in more than 100 countries across the globe
- Strategic partner for the future through training courses and seminars
- Strong brand that is trusted by its customers

The readers of the German automobile magazine “auto, motor und sport” have voted Bosch as the best brand in the filter category for seven times in a row.

Oil filters
Task: To protect the engine from foreign particles, such as rust or metal particles in the oil.

Fuel filters
Task: To protect the injection system and the engine from foreign particles, water and other residue in fuel.
Air filters
Task: To protect the engine against dirt particles in the intake air.

Cabin filters
Task: To protect the vehicle occupants from pollen, pollutants, and dust, and to protect the air-conditioning system. An activated carbon filter can also provide additional protection against harmful and foul-smelling gases.
Quality as expected by professionals: Commercial vehicle filters from Bosch

The ideal filter for every vehicle: It is very important not to compromise when it comes to commercial vehicles. That is why Bosch provides the entire program for all current types of commercial vehicles and engines.

**Fuel filter**
Task: To protect the injection system and the engine from foreign particles, water, and other residues in the fuel.

**Oil filter**
Task: To protect the engine from existing pollutants, such as rust or metal particles in the oil.

**DENOX filter**
Task: To protect the components of the SCR catalytic converter from contamination – requirement for correct AdBlue dosing.
Air filter
Task: To protect the engine against dirt particles in the intake air.

Cabin filters
Task: To protect the passengers against pollen, dust and pollutants and to protect the air-conditioning system; additional protection against harmful and foul-smelling gases with activated carbon filters.

Special filters
Special filters for special tasks – from the desiccant box and coolant, to hydraulic fluid filters and oil separators.
Research, development and production:
Innovative ideas for strong performance

For more than 80 years Bosch has been developing and producing filters for motor vehicles and engines. As one of the pioneers of injection systems, Bosch recognized the importance of protecting these sensitive systems at an early stage. This expertise has been consistently applied till date to every filter carrying the Bosch brand.

Focus on research and development
Bosch develops numerous products and processes to optimize filtration for modern engines. For example:
- Diesel filters for biodiesel applications with special sealing and housing materials as well as improved filter media
- Active and passive filter heating to prevent clogging
- Special fuel filters for vehicles with automatic start/stop system
- Improved filter media and new water separation technologies for the use of biodiesel as well as E10 fuels containing alcohol

The type and quality of the filter medium is decisive in terms of a filter’s service life, the particulate absorption capacity, and its resistance to aggressive fluids.

The high-quality filter paper is hardened and folded. The first and last folds are welded with a special plastic thread for maximum reliability.

Valued world over – Bosch filters
- Production facility
- R&D center
Random samples are taken from each production batch and subjected to a range of different tests. This serves to ensure constant quality throughout the entire production run.

**USP for Bosch filters**

- Expertise from one of the leading engine management system suppliers
- Filters made to match every vehicle and the specific engine characteristics involved
- Close collaboration between the filter development engineers and specialists in gasoline and diesel systems
- Use of the very latest production technologies
- Guaranteed original equipment standard based on manufacturers’ specifications

**New packaging for Bosch filters**

- Practical: Easy to handle and store
- Sturdy and resistant: Perfect protection against transport damage
- Product information in 8 languages (depending on the minimum packaging size)
- Installation instructions on the side or as an insert

Filter housings need to retain their tightness even under high pressure. For steel housings this is done through double beading, for instance. Each individual Bosch filter is checked separately for leakage.
**Gasoline filters**

**Vehicles with carburetor engines:**  
**Traditional Bosch quality**  
The fuel filters used for carburetor engines protect the system against contamination to prevent starting problems and rough engine running.

**Jetronic fuel filters:**  
**Reliability for modern injection systems**  
The fuel filter is a crucial component in electronic injection systems. Jetronic fuel filters from Bosch retain even minute impurities, thus optimizing operation and extending the service life of the system.

---

**Diesel filters**

**For conventional systems:**  
**Technology from the specialist for diesel systems**  
Diesel filters are used to eliminate foreign matter and separate the water contained in diesel fuel. Bosch filters combine these two functions in an ideal manner.

**For common rail systems:**  
**Designed to satisfy the highest standards**  
Bosch can supply innovative, economical concepts for common rail technologies. Bosch filters are ideally suited to the high injection pressures and tight tolerances encountered in common rail precision technology.

---

**The advantages of Bosch fuel filters**

- Protection of the injection system through high particle separation rate
- Full engine performance thanks to large filter surface and low flow resistance
- Robust housing
- Long, reliable service life through special filter medium coating

---

**Change the diesel filter regularly according to the manufacturer’s specifications.**

Consequences of clogged filter:

- Power loss of the engine, even to the extent of an engine standstill
- Impairment or interruption of the fuel supply
- Impairments to the output of the fuel pump, even to the extent of a short-circuit
- Increased wear
- On diesel vehicles: Internal corrosion of engine components
Crucial for commercial vehicles: Diesel filters with water separators
Due to the high flow rate, water separators are often built into commercial vehicles to pre-filter water and coarse particles. The actual diesel filter then performs the task of finely filtering the fuel.
Bosch oil filters:
For optimum engine performance

Purpose of the oil
- Minimization of wear and friction
- Heat dissipation
- Precision sealing and protection against corrosion

Task of the oil filter
- To protect the engine against impurities in the oil such as dust, metal particles, combustion residue or soot particles

Change the oil filters regularly according to the vehicle manufacturer’s specifications!

Consequences of clogged filter:

Urban traffic means stress for the oil
On short-distance trips and in stop-and-go traffic, the oil and the oil filters should be changed more often than the replacement intervals specified by the vehicle manufacturer because frequent cold starts lead to more condensation and excess fuel in the combustion mixture. This means that...
- ... unburnt hydrocarbons and condensation enter the oil which leads to premature aging of the oil
- ... at high engine temperatures, these components evaporate in the oil circuit, which further reduces the lubrication quality

The advantages of Bosch oil filters
- Protection of the engine and retaining engine oil functionality in the long term thanks to high particle separation rate, moisture resistance, and tensile strength
- Long service life thanks to large filter surface
- Protection of the environment and engine as oil losses are prevented
- Immediate engine lubrication during cold-starts thanks to non-return valve
Oil filters – Design and operation

1. Sealing
2. Threaded connection
3. Double beading
4. Non-return valve
5. Filter medium
6. Support jacket
7. Pressure-resistant filter housing
8. Bypass valve

Oil filter insert
The oil filter housing is connected permanently to the engine block. When changing the filter, only the filter insert and the seals are replaced.

Oil filter exchange box
When changing the filter, the entire oil filter is replaced and bolted directly to the engine block using a connecting flange.

Specially for commercial vehicles: Oil bypass filtration
In commercial vehicles, a large amount of particles collect in the oil over time, above all soot particles. This causes premature aging of the oil and engine wear. In addition to the main flow filter, which filters the entire quantity of oil with each cycle, commercial vehicles usually also have a bypass filter. This cleans 5 to 10% of the oil in a separate circuit.

Fresh engine oil
Good lubrication properties

Aged engine oil
With soot contamination, poor lubrication properties
Bosch air filters: Top quality engine protection

Tight fit
The seal in air filters must remain soft, supple and fit exactly during the entire service life, in order to prevent unfiltered air from reaching the engine. This is why Bosch air filter come with a high-quality seal and manufactured in strict compliance with the requirements for each vehicle.

Tasks of the air filter
▶ Protect the engine against dirt particles in the intake air
▶ Protect the engine against wear
▶ Safeguarding of the air supply for the mixture preparation
▶ Reduction of the noise level

Change the air filters regularly according to the vehicle manufacturer’s specifications!
Consequences of clogged filter:
▶ Poor air-fuel mixture preparation, resulting in reduced engine power and increased pollutant emissions
▶ More fuel consumption
▶ Increased wear in the engine due to particles
▶ Problems when starting the engines

The advantages of Bosch air filters
▶ High efficiency and reliability during the entire filter service life thanks to robust pleat geometry
▶ Long service life and thus protection of the engine thanks to high particle separation rate, moisture resistance, and tensile strength, as well as chemical and thermal stability
▶ Lower fuel consumption thanks to excellent dirt collection capacity and low flow resistance
Higher separation degree for commercial vehicles

A separation degree of 99.9 % is required for air filters in commercial vehicles, whereas 99.8 % is sufficient for cars. The flow of dust in commercial vehicles must therefore be reduced by half. This is achieved by fine pores in the filter medium. Construction site vehicles are usually equipped with additional air filters, for example secondary filter inserts and cyclone separators.

Why air filters must not be cleaned

To burn 1 liter of fuel, you need 10,000 liters of air. That makes it all the more important that air filters work perfectly and are changed regularly. If you try to extend the service life of an air filter by cleaning the filter medium with compressed air, you are making a false economy. The risks are as follows:

- Compressed air destroys the folds in the filter medium and so impairs the operation of the air filter
- Impurities enclosed in the filter medium are released again
- Dirt and particles penetrate into the engine, leading to a loss of power and, in the worst-case scenario, damage to the engine
Bosch cabin filters: Improving health and safety

Tasks of the cabin filter
- To protect the vehicle occupants from pollen, pollutants, and dust
- An activated carbon filter can also provide additional protection against harmful and foul-smelling gases.
- To protect the air-conditioning system

Change cabin filters every 15,000 km or after one year!
Consequences of clogged filter:
- Poor vision due to misted windows, so reduced safety
- Increased concentration of pollutants (up to 6 times higher than outside the vehicle)
- Allergic reactions, e.g. sneezing
- Restricted operation of the air-conditioning system due to deposits on the evaporator

The advantages of Bosch cabin filters
- Filtering of almost 100% of all dust and dirt particles, pollen, bacteria, and spores
- Consistent functionality during the entire filter service life thanks to excellent stability
- Protection against fine dust through filtration of even the smallest particles down to a size of 0.0025 mm
- More fresh air in the cabin thanks to considerable air flow

Electrostatically charged filter material even captures respirable particles of less than 0.1 µm thickness. By comparison: A human hair is about 7.0 µm thick.
Activated carbon cabin filters for commercial vehicles

A truck is a workplace, so protecting the driver’s health should be given priority. Activated carbon cabin filters guarantee fresh air, even when in a tunnel or traffic jam:

- Filtration of foul-smelling and harmful gases
- Improved level of concentration
- Improved view due to fewer deposits on the windows

**Unbelievable technology: The activated carbon layer**

- Natural material made of coconut shells that are carbonized and crushed in a hermetically sealed environment
- Formation of the porous structure in high-temperature steam (up to 800 °C)
- Enormous surface area: 1 gram of activated carbon has an interior surface of approx. 1,000 m²
- 1 teaspoon of activated carbon equates to the surface area of a football pitch
**Bosch**: Bringing you the workshop of the future

For over 120 years, Bosch innovations have been keeping vehicles on the road and getting people to and from their destinations while improving safety and peace of mind along the way.

Bosch Automotive Aftermarket offers workshops and retailers a comprehensive portfolio of products that is unmatched worldwide:

- Efficient diagnostics
- Innovative workshop equipment
- Quick, reliable delivery
- The world’s most comprehensive range of spare parts – including both new and remanufactured
- Workshop concepts to meet every requirement
- Comprehensive training
- Targeted sales and marketing support
- A competent service hotline
- 24-hour online workshop services
- Affordable leasing services for workshop equipment and software
- Plus many more services to help you succeed

This combination ensures the perfect coordination of parts, schedules, and organization with the respective results.

**The world of Bosch:**

- Diagnostics
- Diesel systems
- Gasoline systems
- Braking systems
- Spark plugs
- Energy systems
- Batteries
- Filters
- Wiper systems
- Lighting technology
- Comfort electronics
- Technical hotline
- Knowledge database
- Service training
- Workshop concepts

**Your address for genuine Bosch quality:**

For more information:

www.bosch.com