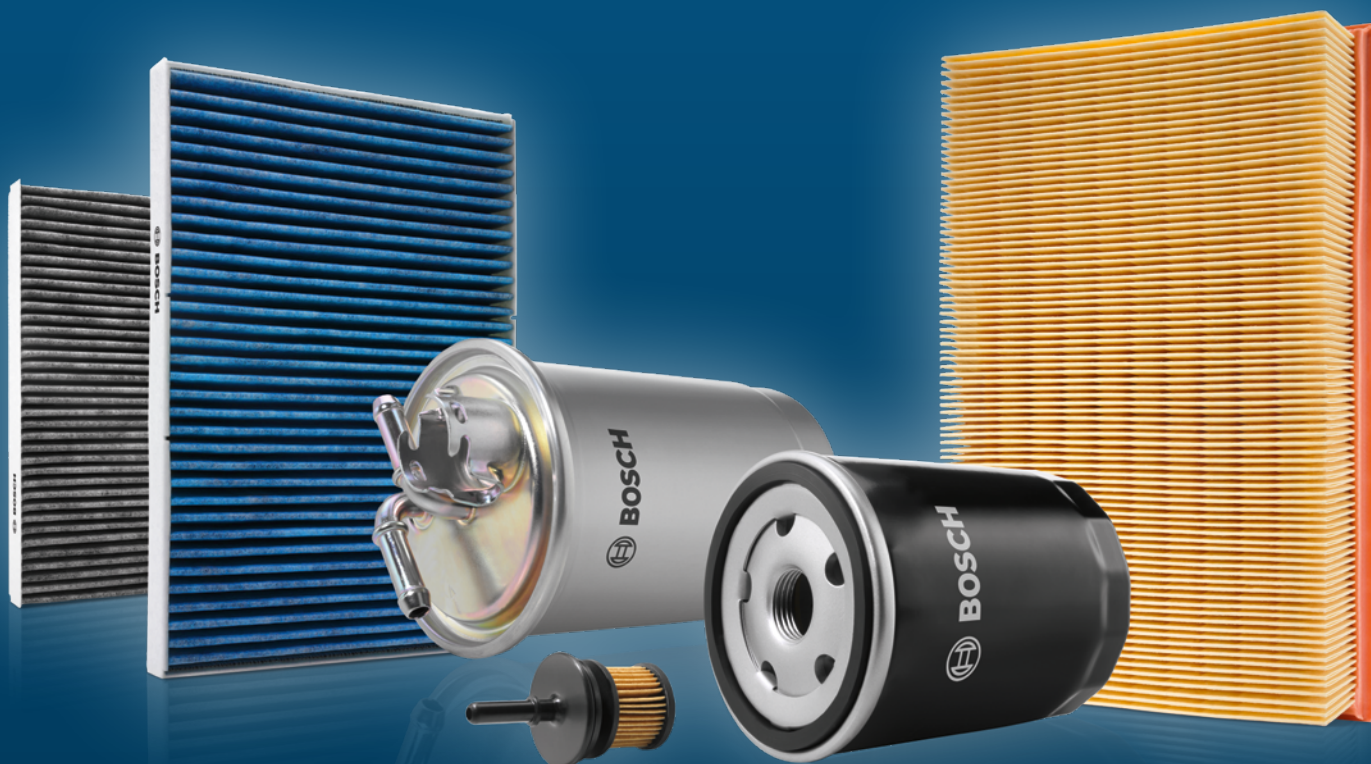


Invented for life



# Filters

Bodyguards for engine and health



# Filters

## Overview

Bosch – a strong partner for filter businesses: Satisfied customers, low warehousing and ordering efforts, products according to original equipment standards – Bosch filters stand out for numerous convincing USP:

### Safety through outstanding product quality

High-quality materials, neat and accurate processing and well-defined quality checks – according to the same standards as for OE parts.

### Competence for injection systems

Bosch develops and produces diesel and Denoxtronic injection systems and therefore knows how to protect them.

### Complete range from a single source

Easier handling and ordering thanks to a comprehensive program, which is permanently updated.

### High availability of goods

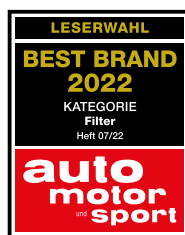
Bosch ensures quick availability of its parts by means of an international sales and logistics network.

### Strategic partner for the future

Suitable diagnostic solutions, training courses and seminars for wholesalers and workshops.

### A strong brand

17 times in a row, the readers of the German automobile magazine “auto, motor und sport” voted Bosch the best brand in the Filters category.



„auto motor und sport“,  
edition 07/2022



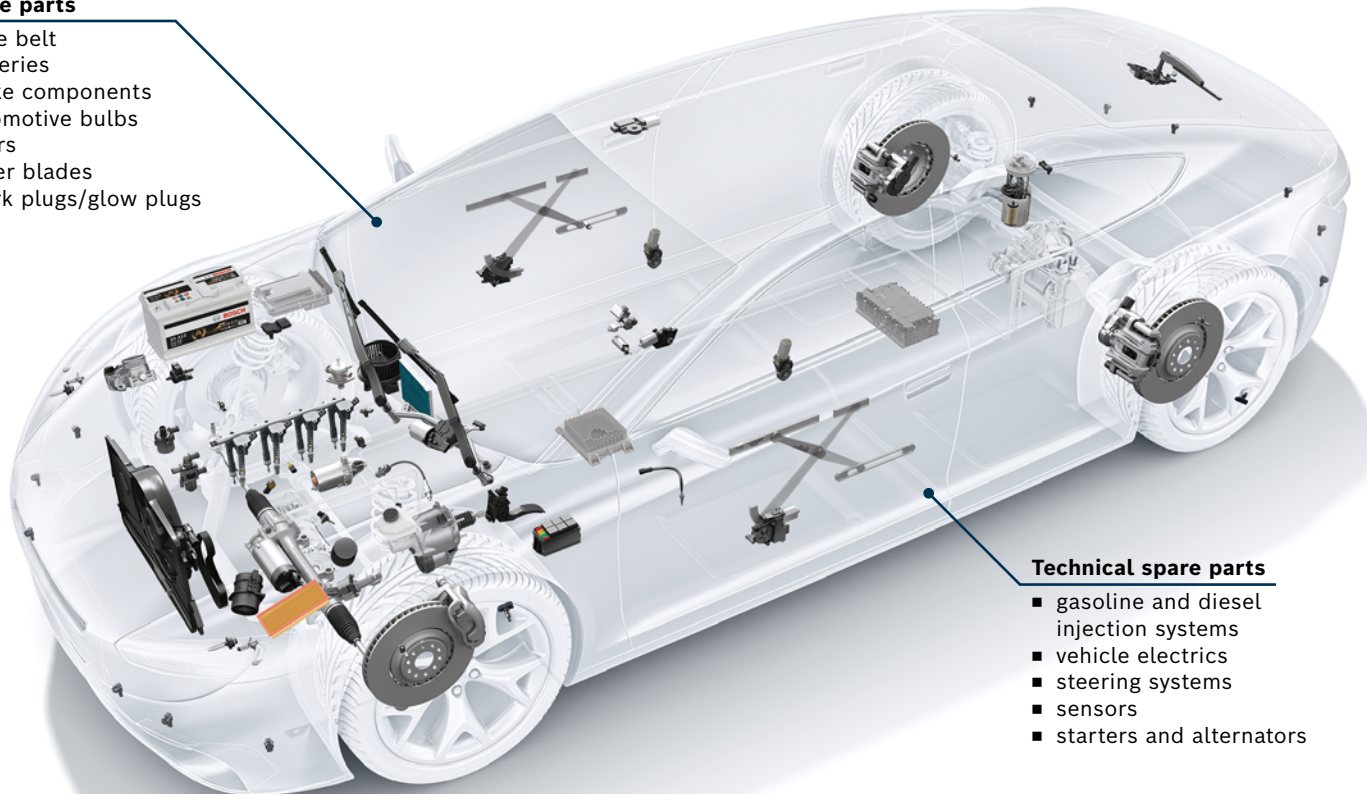
# Suitable spare parts for all drives

## Bosch product range for passenger cars

Bosch supports workshops in the repair and maintenance of all types of vehicles and drives. To this end, Bosch offers a comprehensive range of reliable, long-lasting, spare and service parts in high quality.

### Service parts

- drive belt
- batteries
- brake components
- automotive bulbs
- filters
- wiper blades
- spark plugs/glow plugs



### Technical spare parts

- gasoline and diesel injection systems
- vehicle electronics
- steering systems
- sensors
- starters and alternators

Bosch offers workshops an extensive portfolio of spare and service parts e.g. for mild hybrid electric vehicles (MHEV).

For modern vehicle repairs: spare parts, workshop equipment, services and support

- Continuously updated service offers for workshops
- Workshop equipment for vehicle diagnostics: air conditioning service, battery service, ADAS calibration, emissions analysis, vehicle-system analysis, ECU diagnosis and ESI[tronic] 2.0 online workshop software
- Suitable training courses for the repair business with modern drives
- Service parts and technical spare parts



Did you know?

# 2.2 million

hybrid electric or battery electric vehicles are currently driving on Germany's roads\*. For workshops, they increasingly represent a major service and repair potential.

\*German Federal Motor Transport Authority (1.1.22)

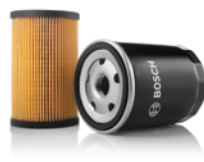
# Filters

## Product range



### Fuel filters

Bosch fuel filters protect the injection system. They reliably separate particles and water from fuel and contribute to optimum engine performance



### Oil filters

Bosch oil filters protect the engine and engine components e.g. the turbocharger. They reliably separate soot and metal abrasion from engine oil.



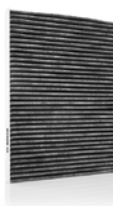
### Air filters

Bosch air filters protect the engine and support a proper function of the sensors in the intake air duct. They reliably separate particles from intake air and contribute to optimum engine performance.



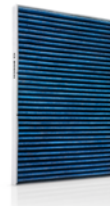
### Standard cabin filters

Bosch standard cabin filters – for clean air inside the car.



### Activated carbon cabin filters

Bosch activated carbon cabin filters – for noticeably purer and more pleasant air inside the car.



### FILTER<sup>+</sup>pro cabin filters

Bosch FILTER<sup>+</sup>pro cabin filter – for the best possible air quality in the vehicle interior: works effectively against viruses, bacteria, mold, fine dust and neutralizes allergens as well as harmful gases.



### Bosch filter program

- Complete range consisting of more than **2,700** filters
- Vehicle parc coverage in Europe of appr. **95 %**
- More than **200** new releases each year



### Modern drive types

The Bosch filter program offers a high vehicle parc coverage for

## hybrid and electric vehicles

for cabin air filters, for example, of over 90 % in Europe.



# Filters Production

Ever since 1978, Bosch has been producing filters in Spain. Nowadays, the plant in Aranjuez develops and produces fuel filters, oil filter elements and Denoxtronic filters. In addition, it is also specialized on plastics.



■ **Video:**  
How Bosch  
filters are  
produced



\*Surface: 64 310 m, staff: appr. 470

What makes Bosch so special: Closely cooperating with developers of gasoline and diesel injection systems, the filter developers gain first-hand knowledge about specific technical requirements.



? **Did you know?**

In  
**1930**

Robert Bosch first used a special paper for fuel filters – a material constantly improved ever since and still used today.

# Filters

## Quality requirements

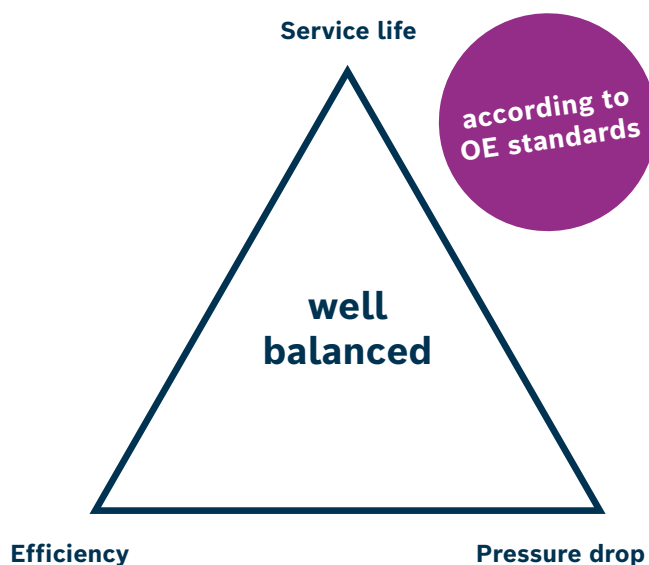
Product quality is not negotiable; there can't be any compromises in this regard. Besides high-quality materials and excellent processing, this includes optimized alignment of the filter specifications.

These specifications influence one another. They must thus be exactly geared to each other in order to ensure outstanding filter performance.

**All functional and quality tests are performed according to the same standards applied to original equipment parts.**



### Magic triangle of filtration



### Service life (dust retention capacity):

the amount of particles a filter is able to retain before reaching the change interval – should be as high as possible

### Efficiency (particle separation rate):

the ratio of the number of particles retained by the filter to the number entering the filter, expressed as a percentage – should be as high as possible

### Pressure drop (differential pressure):

the difference in fuel/oil/air pressure between filter inlet and outlet – should be as low as possible

# Diesel filters

## Product details

Bosch diesel filters protect the injection system. They reliably separate particles and water from fuel and contribute to optimum engine performance.



### ■ Video:

See a fuel filter doing its job



### Advantages at a glance

- **Excellent filter efficiency and reliable water separation** due to multilayered, microporous filter media
- **High particle holding capacity and low flow resistance** due to large filter surface
- **Moisture resistance and tensile strength** due to specially impregnated filter media
- **Protected against inner and outer leakage** due to high-quality processing and usage of resistant materials



### Possible consequences of silted-up filters:

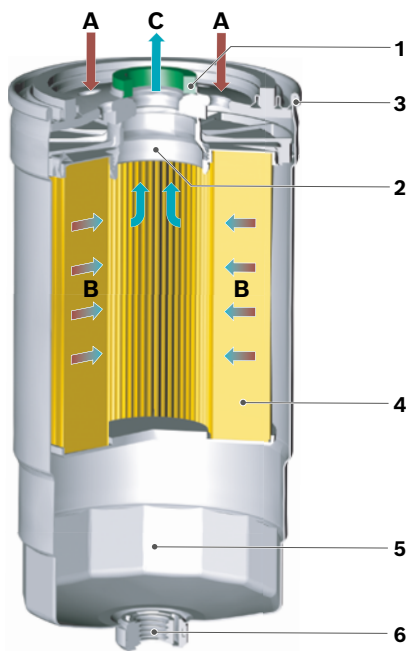
- Loss of engine power or even engine standstill
- Impairment of the fuel supply
- Impairments to the output of the fuel pump or even a short-circuit
- Internal corrosion of engine components

Change diesel filters regularly as specified by the vehicle manufacturer!



# Diesel filters

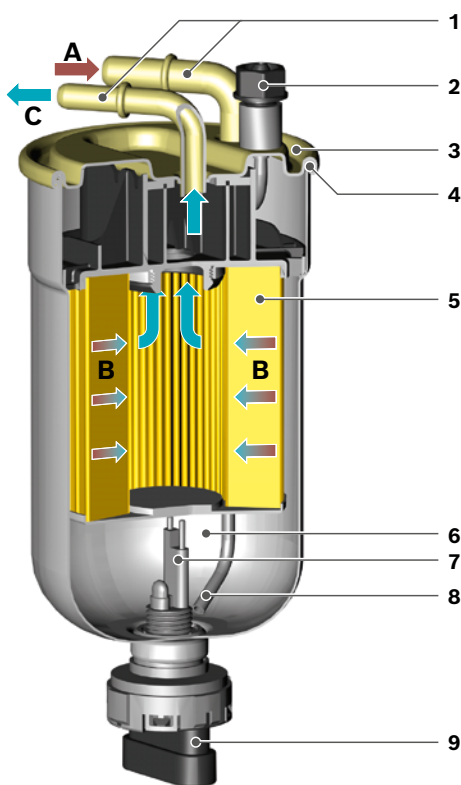
## Technology



### Design and operation of exchange boxes

- 1 Seal
- 2 Threaded connection
- 3 Double beading
- 4 Multilayer filter medium
- 5 Water accumulation chamber
- 6 Water drain screw

- A Inflow of contaminated diesel  
 B Dirt and water filtration of diesel  
 C Cleaned diesel is conducted to the engine



### Design and operation of line filters

- 1 Hose connection
- 2 Water drain
- 3 Filter cover
- 4 Double beading
- 5 Multilayer filter medium
- 6 Water accumulation chamber
- 7 Water sensor
- 8 Water drain tube
- 9 Electrical connector for water sensor

- A Inflow of contaminated diesel  
 B Dirt and water filtration of diesel  
 C Cleaned diesel is conducted to the engine

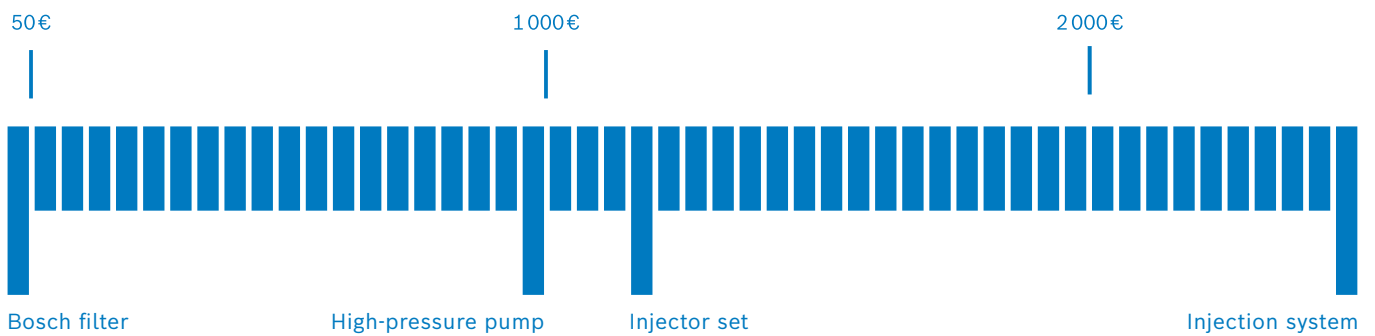


# Diesel filters

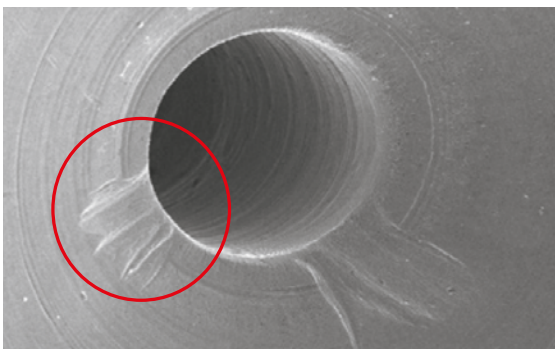
## Quality requirements

Cheap today, expensive tomorrow! Quality has its price: With respect to fuel filters, those willing to save on the wrong things may risk expensive damage to the injection system.

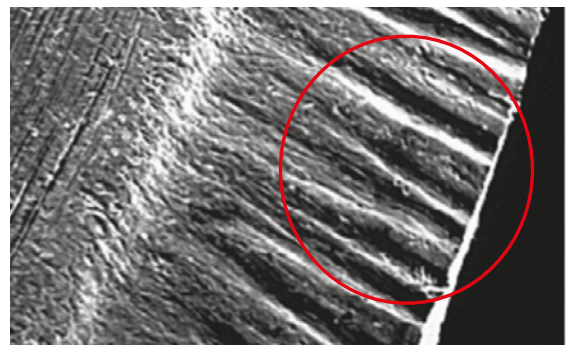
### Cost relations



### Damages on the injection system of an engine caused by non-separated particles and water



Material abrasion on the injector



Scoring on a piston



Corrosion at the high-pressure pump housing



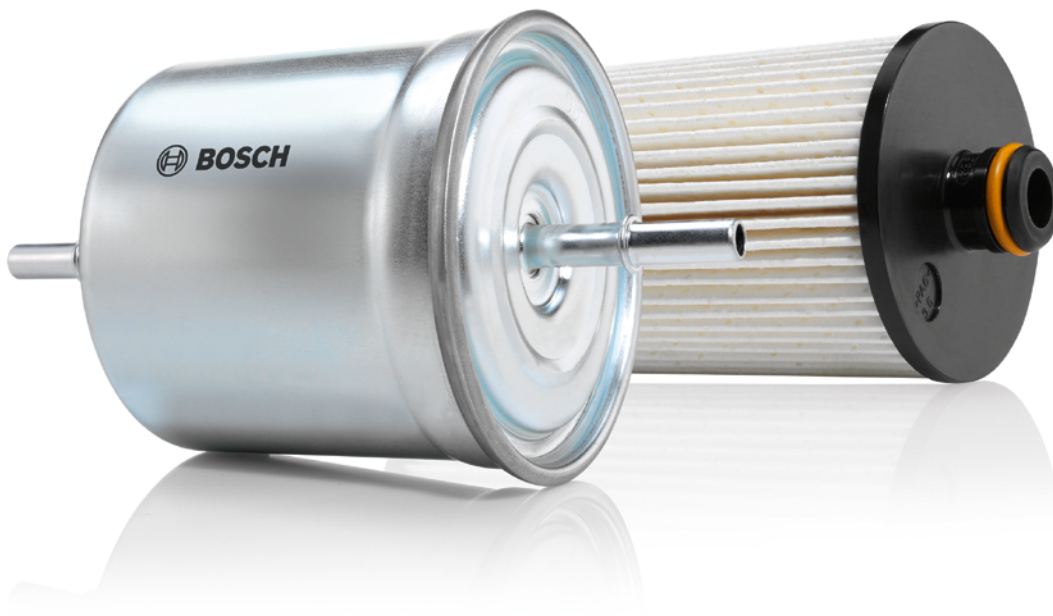
Corrosion at the injector

# Gasoline filters

## Product details

Bosch gasoline filters protect the injection system. They reliably separate particles from fuel and contribute to optimum engine performance.

also for  
hybrid  
vehicles



### Advantages at a glance

- **Long service life and excellent filter efficiency** due to multilayered, microporous filter media
- **High particle holding capacity and low flow resistance** due to large filter surface
- **Moisture resistance and tensile strength** due to specially impregnated filter media
- **Protected against inner and outer leakage** due to high-quality processing and usage of resistant materials



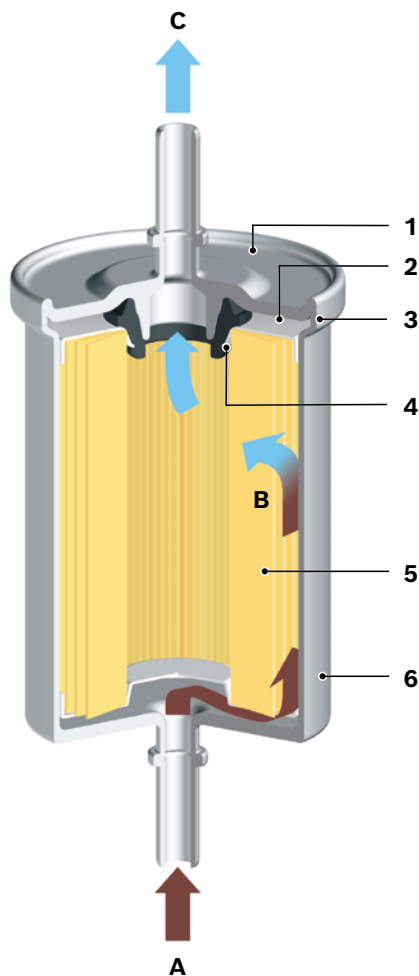
### Possible consequences of silted-up filters:

- Loss of engine power or even engine standstill
- Impairment of the fuel supply
- Impairments to the output of the fuel pump or even a short-circuit

Change gasoline filters regularly as specified by the vehicle manufacturer!

# Gasoline filters

## Technology



### Design and operation

- 1 Filter cover
  - 2 Supporting plate
  - 3 Internally welded edge
  - 4 Seal ring
  - 5 Filter medium
  - 6 Pressure-resistant filter housing
- A Inflow of contaminated gasoline  
B Filtration of gasoline  
C Cleaned gasoline is conducted to the engine

### Going strong as original equipment

In modern vehicles, fuel supply modules are installed into the fuel tank more and more often. The permanently integrated fuel filter in such modules lasts for the vehicle's entire service life and is no wearing part. Several vehicle manufacturers use Bosch fuel supply modules with an integrated Bosch gasoline filter as original equipment for their vehicles.

### Did you know?

Each and every Bosch fuel filter is subject to a leakproofness test performed with

# Helium

at a vacuum chamber.



# Oil filters

## Product details

Bosch oil filters protect the engine and engine components, e.g. the turbocharger. They reliably separate soot and metal abrasion from engine oil.



■ **Video:**  
See an oil filter doing its job



### Advantages at a glance

- **Long service life of filter and engine oil** due to multilayered, specially impregnated filter media
- **High particle holding capacity** due to large filter surface
- **Excellent filter efficiency** due to specially designed and well balanced filter components
- **Reliable engine lubrication** in almost all temperature and oil pressure conditions
- **No oil loss** by corrosion-resistant housing materials and seals made of special rubber



### Possible consequences of silted-up filters:

- Premature engine wear or even engine damage
- Reduced engine performance
- Increased oil consumption

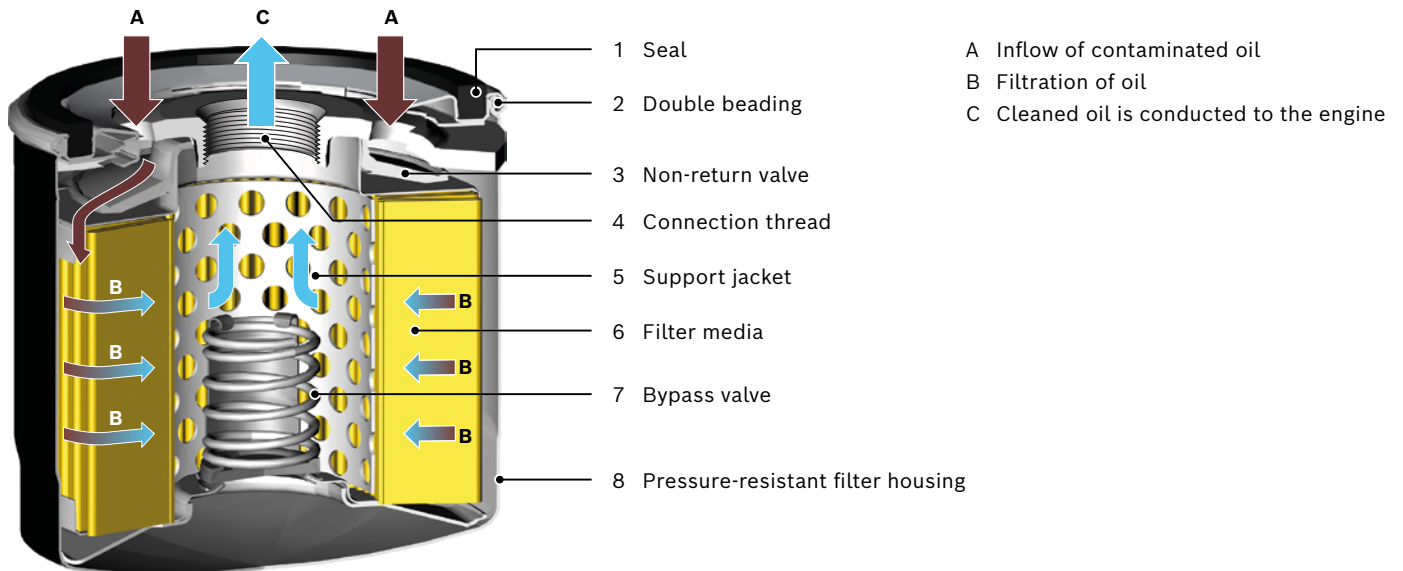
Change oil filters and oil regularly as specified by the vehicle manufacturer!



# Oil filters

## Technology

### Design and operation



### Bypass valve

- Ensures continuous oil supply for the engine at low ambient temperatures (viscous oil) and protection when the filter is clogged at the end of service life through brief bypassing of the filter
- Less damage caused by impurities than by interrupted oil supply and cooling

### Non-return valve

- Prevents idling of the oil filter after switching off the engine
- Immediate lubrication at restarts thanks to quick buildup of pressure

### Urban traffic means stress for oil

Short-distance trips and frequent cold starts can cause an excess of fuel within the combustion mixture and increased condensation.

That is, ...

- the oil could be soiled by unburnt hydrocarbons and condensation causing premature aging of oil

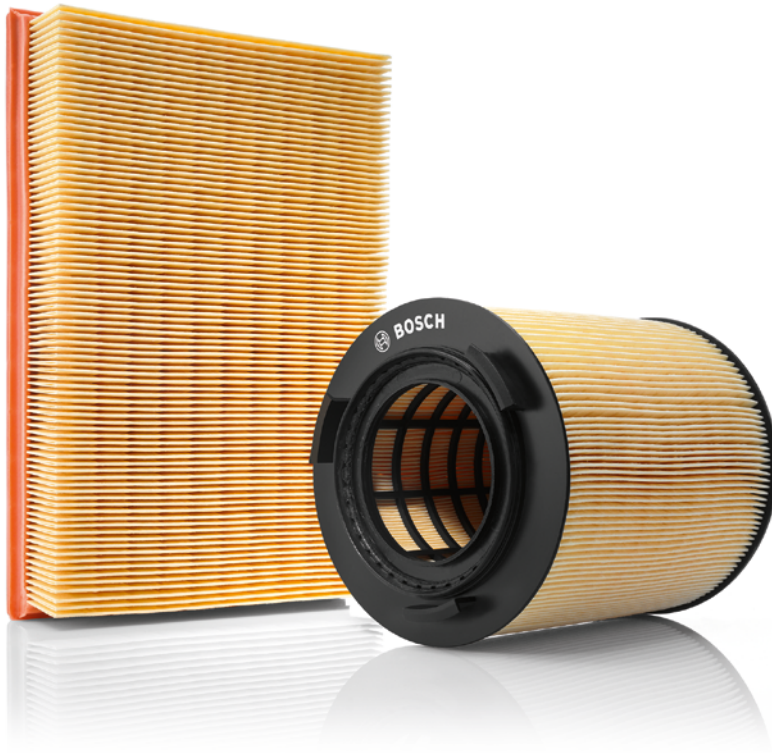
- at high engine temperatures, these components can evaporate inside the oil circuit thus reducing the lubrication quality even further

Therefore: Use high-quality engine oil combined with Bosch quality filters in order to prevent premature oil aging.

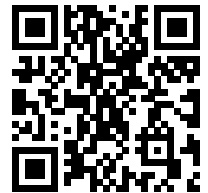
# Air filters

## Product details

Bosch air filters protect the engine and support a proper function of the sensors in the intake air duct. They reliably separate particles from intake air and contribute to optimum engine performance.



■ **Video:**  
See an air filter doing its job



### Advantages at a glance

- **Long service life, excellent filter efficiency, moisture resistance and tensile strength** due to multilayered, specially impregnated filter media
- **High particle holding capacity and low flow resistance** due to large filter surface with an embossing
- **Appropriate fit** due to precise dimensions and high-quality sealing materials



### Possible consequences of silted-up filters:

- Increased fuel consumption
- Reduced engine power
- Increased pollutant emissions

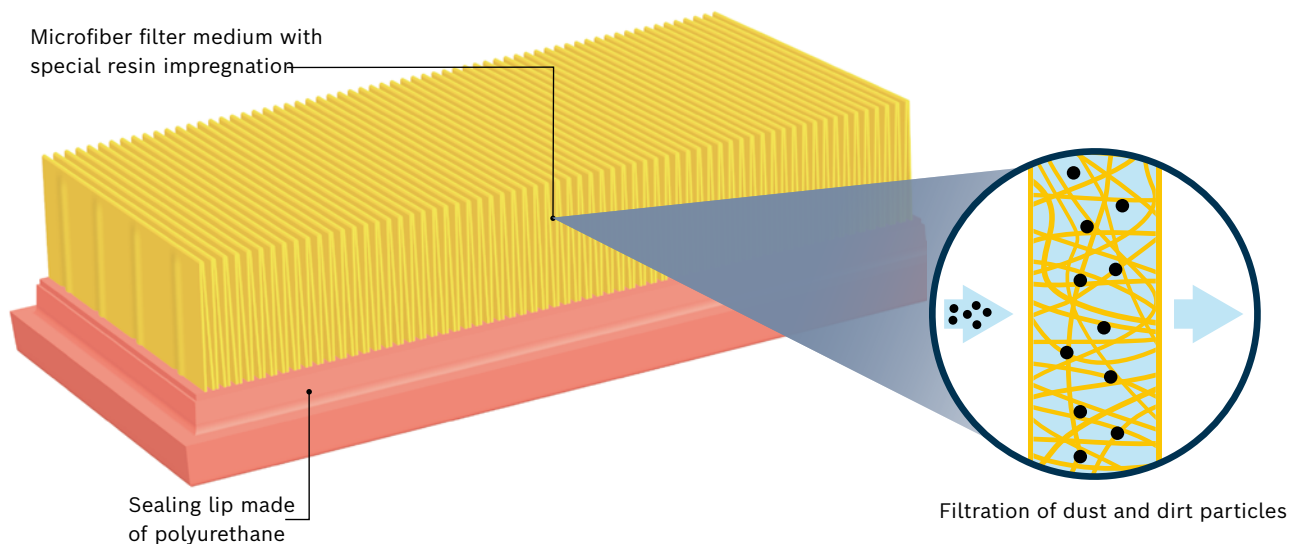
Change air filters regularly as specified by the vehicle manufacturer!

# Air filters

## Technology

### Design and operation

on the example of an air filter with polyurethane frame



### Hot-film air mass meter for precise mixture preparation

Hot-film air mass meters are sensors measuring the mass of intake air. They send this information to the engine control unit for an exact mixture preparation. They are usually fitted into the intake duct right behind the air filter.

For flawless operation, they need

- clean air
- a constant airflow without any disruptive turbulences

In this regard, air filters play an extremely important role.



### Did you know?

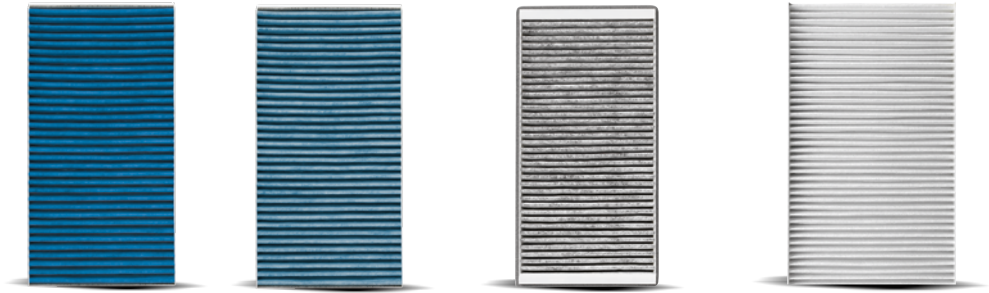
To burn one liter of fuel, a combustion engine needs

**10,000**

liters of clean air.

# Cabin filters

## Range and product details



will be replaced with FILTER+pro until end of 2023

Function	FILTER <sup>+</sup> pro	FILTER <sup>+</sup>	Activated carbon cabin filters	Standard cabin filters
	<b>Bosch FILTER<sup>+</sup>pro</b> works effectively against viruses, bacteria, mold, fine dust and neutralizes allergens as well as harmful gases. For the best possible air quality in the vehicle interior and high health protection for the occupants.	<b>Bosch FILTER<sup>+</sup></b> – a Plus for health, with anti-allergic and anti-bacterial effects. For superior air quality inside the car.	<b>Bosch activated carbon cabin filters</b> – for noticeably purer and more pleasant air inside the car.	<b>Bosch standard cabin filters</b> – for clean air inside the car.
Works effectively against viruses and mold growth	✓			
Works effectively against bacteria	✓	✓		
Separates fine dust (2,5 µm bis 98 %)	✓	✓		
Separates foul-smelling and harmful gases (ozone, smog, exhaust gases)	✓	✓	✓	
Separates pollen and allergens (10 µm bis 100 %)	✓	✓	✓	✓
Protects the air conditioning	✓	✓	✓	✓
Reduces dazzling effects	✓	✓	✓	✓
Coverage				

**Possible consequences of silted-up filters:**

- Poor vision due to misted windows, and thus reduced safety
- Increased concentration of pollutants inside the vehicle
- Allergic reactions, e.g. sneezing
- Restricted operation of the air conditioning system due to deposits on the evaporator

Bosch recommends to change cabin filters every 15 000 km or once a year in addition, the vehicle manufacturer's specifications have to be observed.

**Did you know?**

Allergies are on the rise. In Germany, appr.

# 20 Mio.\*

of the population suffer from pollen allergies.

\* Source: [www.daab.de](http://www.daab.de)



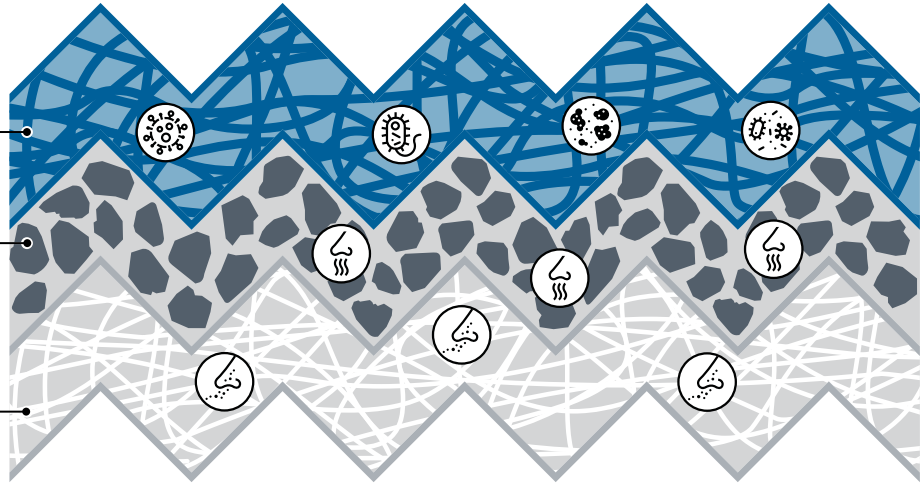
# Cabin filters

## Technology

Market launch  
in spring 2022

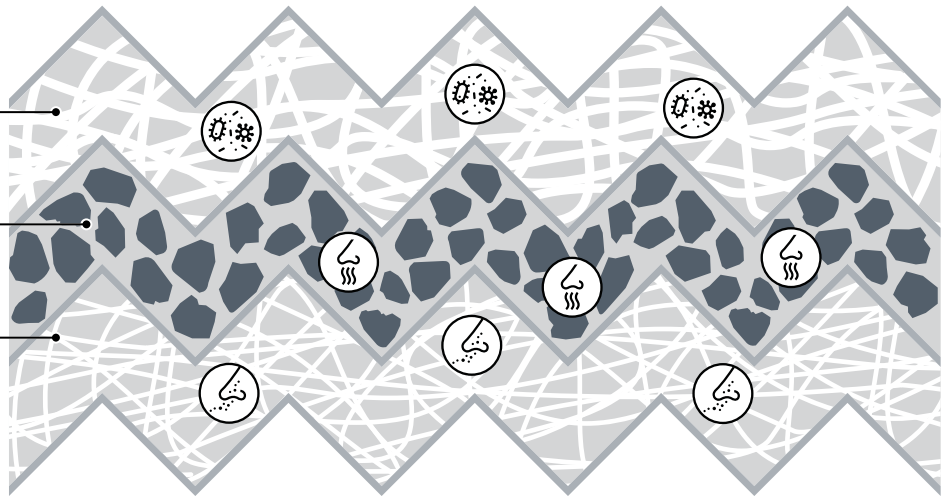
### FILTER<sup>+</sup>pro

- 1 **Anti-microbial layer**  
against viruses, bacteria, mold and allergens
- 2 **Activated carbon layer**  
against harmful and foul smelling gases
- 3 **Ultrafine microfiber layer**  
against fine dust



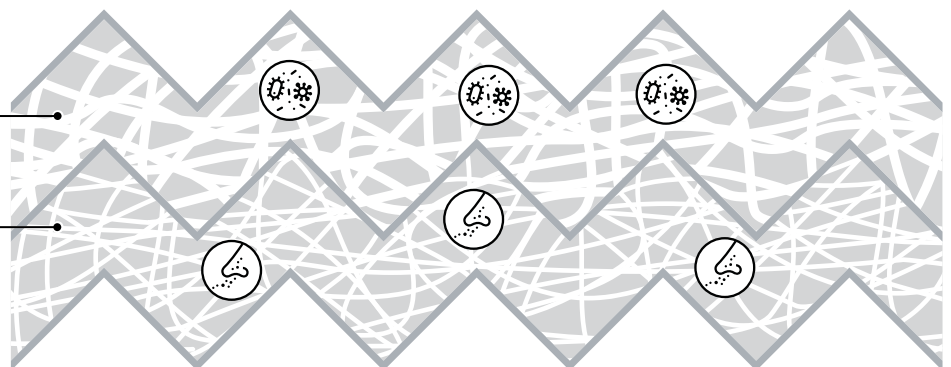
### Activated carbon filter

- 1 **Micro fiber layer**  
against allergens
- 2 **Activated carbon layer**  
against harmful and foul smelling gases
- 3 **Ultrafine microfiber layer**  
against fine dust



### Standard filter

- 1 **Micro fiber layer**  
against allergens
- 2 **Ultrafine microfiber layer**  
against fine dust





#### **Advantages of ESI[tronic] 2.0 Online**

- Easy operation
- One standardized system across all brands
- Comprehensive market coverage
- Modular structure



# Know-how for professionals:

## ESI[tronic] 2.0 Online and test equipment



### Everything about control unit diagnosis from a single source

Complex and connected vehicle systems demand increasingly well qualified diagnoses and comprehensive repair know-how from today's workshops – for engine management, mechanical and electronic components have converged in recent years. Bosch therefore offers workshops extensive knowledge and a complete range of test equipment from a single source. Modern, high-performance diagnostic equipment, technical trainings, and a hotline support workshops in all repairs on electronic systems.

### ESI[tronic] 2.0 Online for diagnostics and servicing

ESI stands for "Electronic Service Information" and is the name of the software for servicing tasks. This includes:

- Professional ECU diagnosis
- Guided troubleshooting right on the system
- Experience-based repair – known fixes  
Find the matching solution for your problem within seconds
- OEM-quality maintenance schedules and plans
- Interactive circuit diagrams
- Access to protected vehicle data (Secure Diagnostic Access)

### Tailor-made for workshops

ESI[tronic] 2.0 Online is completely geared to the needs of workshops. Comprehensive market coverage and constant updates are provided as a matter of course. Easy operation, quick access, and a standardized system across all brands make ESI[tronic] 2.0 Online a user-friendly information tool.

Thanks to the modular package options, workshops can expand their diagnostic software requirements – with additional options – as needed.

[boschaftermarket.com](http://boschaftermarket.com)

### A complete range of diagnostic and test equipment

- ECU diagnosis
- Battery service BAT
- Air conditioning service ACS
- Emission analysis BEA
- Vehicle system analysis FSA
- Driver Assistance Systems Calibration
- Diesel component testing EPS
- Technical hotline and trainings

# What drives you drives us

Bosch technologies are used in most vehicles worldwide.  
People, and assuring their mobility, is what we are focused on.

Therefore, we have dedicated over 130 years of pioneering spirit  
and expertise in research and manufacturing to achieving this.

We provide the aftermarket and workshops worldwide with modern diagnostic and workshop  
equipment and a wide range of spare parts for passenger cars and commercial vehicles:

- solutions for efficient vehicle repairs
- innovative workshop equipment and software
- one of the world's most comprehensive ranges of new and exchange parts
- large network of wholesale customers, for quick and reliable parts supply
- competent hotline support
- comprehensive educational and training offers
- targeted sales and marketing support

**Find out more at:**  
[boschaftermarket.com](https://boschaftermarket.com)

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Automotive Aftermarket

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