



MANN-FILTER

Optimum filtration performance for automotive applications



**MANN
FILTER**

MANN-FILTER – Perfect parts. Perfect service.



MANN-FILTER: Always the right choice

Over 67 years of OE experience, high quality standards, wide program and extensive service

With 41 international locations and 11,500 employees, MANN+HUMMEL is one of the premier global corporations in automotive components. Founded in 1941, MANN+HUMMEL develops and manufactures automotive components such as air filter systems, intake manifold systems, liquid systems and cabin filters for the OE automotive industry and aftermarket filter elements for vehicle servicing and repair. All our filtration products are developed in close cooperation with leading engine manufacturers.

MANN+HUMMEL products are manufactured to the highest quality standards, whether for OE application, which we supply to nearly every leading automobile manufacturer, and our spare parts distributed under the MANN-FILTER brand name.

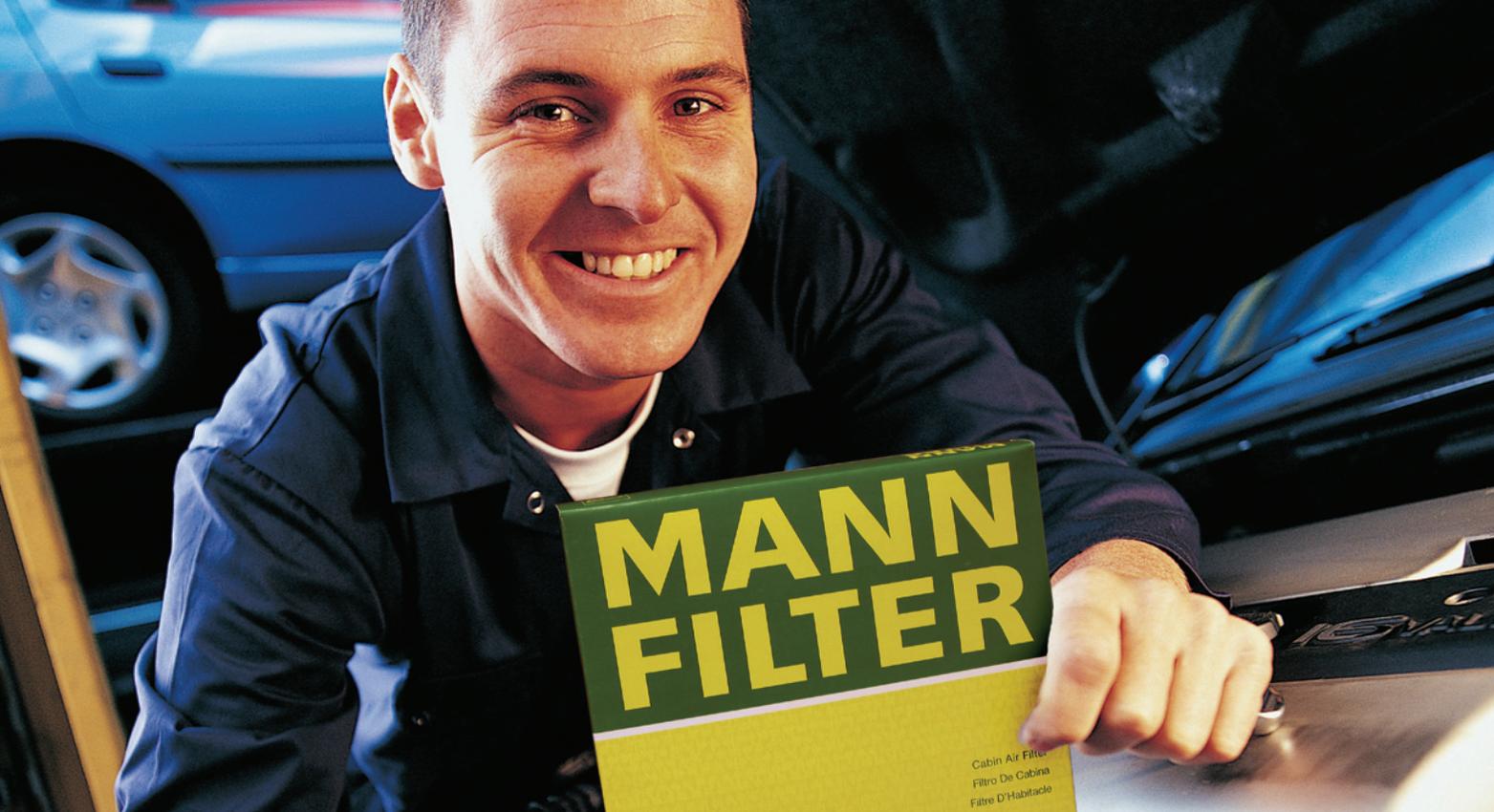
Coverage for U.S., European and Asian models

MANN-FILTER products are known for high quality and high delivery capability, and a product range that covers more than 95% of European models and almost 90% of the U.S. and Asian models in the North American market.

The MANN-FILTER Promises

At MANN-FILTER, we are just as concerned with the services that support our partnership with you as we are with providing excellent product quality. That is why we provide the exclusive MANN-FILTER promises, which are the foundation of our relationship with our customers:

1. The comprehensive MANN-FILTER catalog
2. Reliable logistics
3. Customer-specific sales promotion
4. Professional key account management
5. The Customer Service Center (CSC)
6. Electronic Customer Relationship Management (eCRM)



“My shop has a MANN-FILTER advantage.”

The MANN-FILTER Advantages at a glance

- MANN-FILTER is a brand of MANN+HUMMEL, a **leading development partner and OE supplier** of the international automotive industry since 1941.
- Designed and manufactured by a global company with **five locations in the U.S.** More importantly, the company has been operating in the U.S. market since 1996.
- **Wide product range** covering over 95% of the European and almost 90% of the U.S. and Asian models.
- MANN-FILTER products are manufactured to the **highest quality standards.**
- **Innovative products** – Our history of innovative technology has helped make MANN-FILTER a leader in the OE field. Today, our unique innovation management system is designed to constantly generate and implement original ideas for new technologies and new products.
- **Satisfied customers** – with MANN-FILTER you can offer your customers engine protection, consistent engine performance, fuel savings, and clean air in the interior.
- **MANN-FILTER catalog** – You can easily find approximately 650 filters for passenger cars, almost 12,000 types of vehicles and 100,000 cross-references.
- To find information quickly, visit our **MANN-FILTER Internet catalog** – updated every two weeks and downloadable at www.mann-filter.us.
- **Reliable logistics** – All MANN-FILTER products are delivered to you on-time, complete, and correctly packaged—these considerations are a matter of course for us.
- Swift and reliable answers to all your questions from the MANN-FILTER experts at our **Customer Service Center** Tel (574) 280-7419 Fax (312) 896-3905
- **Customer-specific Sales Promotion** – For your advertising needs, we provide worry-free communications, along with active and professional support, in the form of advertising material, complete campaigns and product-related sales aids.
- Round-the-clock service and support from our **eCRM – The personalized customer portal on the Internet** for direct MANN-FILTER customers offers you up-to-date information on orders, sales, availability and dispatch documents as well as information on product innovations, campaigns and technical developments to help you promote sales.



The benefits of MANN-FILTER Oil Filters

- optimum protection for the engine
- housing is pressure-resistant and protected against corrosion
- long-life filter media made of mixed fibers
- long-life seal
- anti-drain valve made of high-quality silicone*
- Teflon-coated bypass valve*
- fast replacement with wrench removal tools

**If required*

MANN-FILTER Oil Filters

Optimum quality for a longer service life of the engine

Engine oil lubricates all the moving and functional parts in the engine. As a result of combustion, particles of dirt and residue such as soot escape into the engine oil. These contaminants make the oil more viscous, meaning that the oil supply is not adequate and protection from corrosion can no longer be assured. As a result, engine performance is impaired and fuel consumption increases. In the very worst case, the engine itself could be damaged.

Safe protection with MANN-FILTER Oil Filters

Oil filters from MANN-FILTER reliably purify oils of dirt and solid particles such as dust, abraded metal, carbon deposits, soot particles, etc. They are used with engine oil, hydraulic oil and gear oil.

The functions of engine oil:

- reduces friction in bearings, in lubrication gaps and between moving parts
- dissipates heat
- protects against corrosion

MANN-FILTER Oil Filter shapes

Because oil filters are used in different areas and must fulfill different requirements, three different shapes are available:

- oil filter elements
- spin-on oil filters
- oil filters for use in hydraulic and transmission systems

The anti-drain valve ensures that the filter and oil channels do not empty when the engine is switched off and that oil is readily available when the engine is started.

The bypass valve ensures that oil is available to the engine it is cold started, and when servicing is long overdue and the oil filter has become extremely dirty.





MANN-FILTER Air Filters

State-of-the-art technology for optimum engine protection

Clean intake air is essential for problem-free driving. However, pollutants such as particles, soot, fine dust, etc. are taken in with the air. The result is that dirt particles get into the combustion chamber, causing grooves and premature wear on the engine. Even electronic components, such as sensors which are located between the intake and the combustion chamber, can be impaired in their function or even destroyed.

MANN-FILTER Air Filters ensure reliable protection

Modern MANN-FILTER media for air filters demonstrate particularly high mechanical stability. By filtering the intake air efficiently and reliably, they allow optimum composition of the air/fuel mix and ensure consistent engine performance. According to the U.S. Department of Energy, replacing a clogged air filter can improve a car's gas mileage by as much as 10%.

Our air filters have other important functions, too. They reduce intake noise, balance the air flowing towards the air flow meter and seal off adjacent components. Continuing research at MANN-FILTER is setting new standards for the air filtration solutions of the future.

Among the many important functions performed by MANN-FILTER Air Filters are filtering harmful particles such as dust, pollen, sand, soot or even drops of water out of the intake air. This level of filtration efficiency ensures that only clean air gets into the combustion chamber.

MANN-FILTER Air Filter shapes

Extensive technology, more and more components and subassemblies, new legislation to meet increasing safety and comfort requirements as well as developments in engine design have resulted in a constant reduction in space

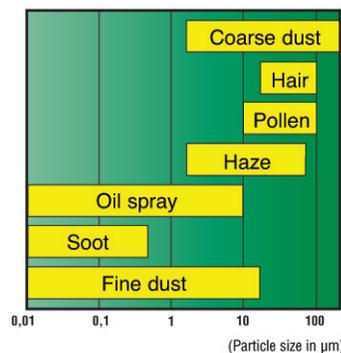
for installation. Modern air filter systems must therefore be more compact to meet the increasing requirements.

MANN-FILTER is continuing to develop innovative air filters which fit the installation location exactly in form and function. Air filters do not always need to be rectangular. Where the installation conditions make it necessary, alternative models are available (oval-conical, step-bellow filters, etc). One example of optimum utilization of the space available is the MANN-FILTER Air Filter with stepped pleats. The stepped arrangement significantly increases the filter surface and improves filtration capacity.

MANN-FILTER offers a vast range of products, with hundreds of shapes and sizes. All of them are manufactured to strict quality standards.

The benefits of MANN-FILTER Air Filters

- reliability throughout the entire service interval
- optimum dirt separation efficiency
- low flow resistance
- permanently 100% leakproof
- specially embossed paper for good pleat stability
- special impregnation prevents water absorption



Typical impurities taken in with the air



The benefits of MANN-FILTER Fuel Filters:

- maximum cleaning
- maximum operational safety of injection-system components
- reliable engine protection
- long engine life
- maximum safety reserves
- insensitive to aggressive fuels

MANN-FILTER Fuel Filters

Innovative technology for a longer service life of the engine

The basic requirement for problem-free motoring is clean fuel. Particularly in modern injection systems, dirt particles in the fuel cause increased wear. Water content in fuel can also cause serious damage as a result of corrosion. At worst, this can result in the complete failure of the injection system, bringing the vehicle to a standstill. Wear on the injection system or carburetor results in a considerable increase in fuel consumption and impaired engine performance.

MANN-FILTER rises to the challenge of all the demands made by the automotive industry with a fuel filter range of the highest quality.

Functions of MANN-FILTER Fuel Filters:

- MANN-FILTER Fuel Filters provide operational safety for engines
- they reliably protect the highly delicate injection mechanism and the carburetor

- they remove from the fuel unwanted contaminants such as dust, rust or water which cause wear
- they protect the injection system from corrosion

There are four different shapes of MANN-FILTER Fuel Filters:

Fuel filter elements

They are replaceable and are located in a separate housing integrated in the engine:

- fuel filter elements as standard in housing with paper or felt filter media
- centre-bolt filter
- special filter shapes

Metal-free filter elements

Some MANN-FILTER elements are particularly ecofriendly, as they are metal-free. They are made of one material and do not create any ash when disposed of in a thermal process.

Benefits:

- reduced use of raw materials
- kinder to the environment with less waste

Spin-on fuel filters

They form one unit consisting of housing and filter element. The whole unit is replaced during servicing:

- spin-on fuel filter in standard version
- version with water drain plug
- special shapes with a connecting branch
- special shapes with connection for water level indicator

Fuel line filters (inline)

These filters are mounted in the fuel line. The housing and filter element form one unit which is replaced during servicing:

- plastic inline fuel filters
- metal inline fuel filters



MANN-FILTER Cabin Filters

Clean air inside the vehicle

Continuous research for new filter media

We are constantly optimizing the filter media for MANN-FILTER Cabin Filters, and adapting them to meet increasing requirements. Choice of filter media is always linked to the vehicle manufacturer's specification and the space available in the vehicle. As a result, the optimum filter media is used by MANN-FILTER for every application.

Nonwoven: A reliable media

MANN-FILTER non-woven materials are made up of many small fibers. Their structure provides reliable and almost complete separation of dust and soot particles. MANN-FILTER non-woven is also naturally free of any chemical impregnation and odor-free.

Shapes of MANN-FILTER Cabin Filters

As the demands made on cabin filters vary, there are two

types of MANN-FILTER Cabin Filters available:

- particle filters
- adsotop® combi-filters (with activated charcoal)

Particle filters provide maximum possible filtration performance in the smallest space.

MANN-FILTER adsotop® combi-filter: The activated charcoal specialist

The MANN-FILTER adsotop® combifilter has an additional function, compared with the particle filter. Like a sponge, the activated charcoal layer embedded in the non-woven material absorbs harmful gases such as nitrogen dioxide, fuels and ozone into pores which are 10,000 times finer than a human hair. That is how the combi-filter ensures a healthy cabin environment. This modern filter consists of a non-woven-based particle filter media, an activated charcoal layer and a carrier media to improve stability.

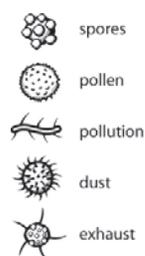
Saving time and money: The installation instructions for MANN-FILTER Cabin Filters

The cabin filter is fitted in different places, depending on the type of vehicle. In some cases it is difficult to find. MANN-FILTER provides practical support when servicing with detailed installation instructions. For you this means:

- easy handling
- quicker work
- satisfied customers

The benefits of MANN-FILTER Cabin Filters

- optimum ventilation inside the vehicle through low flow resistance
- even the smallest particles are reliably filtered out
- consistent filtration performance throughout the entire service interval
- greatest filtration efficiency through a combination of mechanical and electrostatic attraction
- exact fit and seal
- detailed fitting instructions for easy and fast assembly





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