



Scoring a technical knockout

Design, material and processing – the big MANN-FILTER quality comparison

Quality that makes the difference

MANN-FILTER – Perfect parts. Perfect service.
www.mann-filter.com

MANN-FILTER: The difference is in the detail

Many filters may look very similar at first glance. But take a closer look and you will see significant differences in quality.

This filter guide helps you to explain to your customers exactly where the differences lie and why it is so important to use MANN-FILTER products.

We show you why some filters lack staying power and can't deliver what they promise and why MANN-FILTER should always be the number one choice.





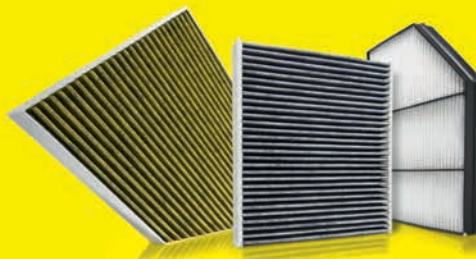
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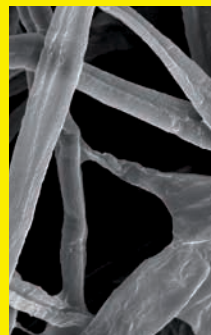
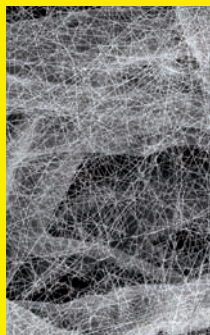
Air filters



Air filters in MANN-FILTER OE quality

+ Filter media

- ⊕ Filter media selected for the individual application to OE specifications
- ⊕ Full filtration performance throughout the service interval plus reserve capacity
- ⊕ Sustains consistently high engine performance
- ⊕ Optimum protection for the engine, air flow mass meter and other sensitive components



+ Seal

- ⊕ Firmly fitting MANN-FILTER PUR foam gasket
- ⊕ Fits perfectly in the filter housing
- ⊕ Sealing contour aligned with the housing
- ⊕ Resistant within all normal temperature ranges
- ⊕ Retains the necessary elasticity throughout the service interval



Inferior quality

Filter media -

- ⊖ Standard filter media without reference to its application
- ⊖ Premature service may be necessary
- ⊖ Contamination of the air flow mass meter results in incorrect readings and increased fuel consumption
- ⊖ Inadequate supply of air to the engine with possible loss of power
- ⊖ Possible increase in engine wear

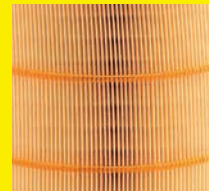
Seal -

- ⊖ Gasket too soft/too hard
- ⊖ Leakage, e.g. through brittleness
- ⊖ Use of critical materials such as PVC
- ⊖ Unfiltered air reaches the engine
- ⊖ Increased wear to the engine
- ⊖ Inadequate temperature resistance

Air filters in MANN-FILTER OE quality

+ Stabilisation

- ⊕ Optimum pleat geometry and stability, even under heavy load
- ⊕ Special embossing process for filter medium
- ⊕ Top quality impregnation providing high chemical resistance and mechanical stability
- ⊕ Provides optimum prerequisites for the air flow mass meter to function efficiently
- ⊕ Consistently high filtration performance even in humid and wet conditions
- ⊕ Depending on application, elements are stabilised with glue beads, supporting inserts or spiral wound technology



Inferior quality

Stabilisation -

- ⊖ Pleats inadequately embossed
- ⊖ Unstable element, unreliable function
- ⊖ Unsuitable impregnation with poor chemical resistance and mechanical stability
- ⊖ Inconsistent filtration performance in humid and wet conditions
- ⊖ Bunching of pleats through ingress of water following, for example, heavy rain leads to incorrect signals from the air flow mass meter and to a shorter service interval
- ⊖ Stabilising inserts or technologies missing or inadequate



Air filters in MANN-FILTER OE quality

+ Safety

- ⊕ Protective fleece medium on the air filter (pre-filtration in dusty environments, also water and snow separation)
- ⊕ Stronger protection against vehicle fires through flame-retardant filter impregnation: when in contact with a smouldering cigarette sucked in through the air intake, the risk of fire is substantially reduced



Inferior quality

Safety -

- ⊖ Without flame-retardant impregnation, the air filter may start to burn when in contact with a smouldering cigarette sucked in through the air intake





Oil filters



Oil filters in MANN-FILTER OE quality

+ Gasket

- ⊕ Optimum sealing quality
- ⊕ Complete seal during the entire service interval
- ⊕ Filter cannot loosen when the engine is running
- ⊕ Reliable also at extremely low temperatures



+ Screw cap

- ⊕ Precisely fitting thread
- ⊕ Easy assembly and disassembly
- ⊕ Firmly moulded base of gasket creates a secure fit



Inferior quality

Gasket

- ⊖ Produced from inferior materials
- ⊖ Inadequate seal
- ⊖ Possible loosening of filter when the engine is running
- ⊖ Possible loss of oil

Screw cap

- ⊖ Inaccurately machined thread
- ⊖ Possibly difficult to mount
- ⊖ Inaccurately moulded base of gasket
- ⊖ Possible loss of seal
- ⊖ Possible loss of oil

Oil filters in MANN-FILTER OE quality

+ Anti-drain valve

- ⊕ Specially moulded component for reliable operation
- ⊕ No drainage from filter and oil ducts
- ⊕ Immediate pressurisation on starting
- ⊕ Maximum service life through high degree of flexibility and stability

+ Filter media

- ⊕ Optimum pleat geometry for a minimum differential pressure
- ⊕ High dust holding capacity
- ⊕ Maximum filtration performance through top quality materials
- ⊕ Long service life
- ⊕ Special embossing processes provide uniform pleat spacing and thus maximum filtration performance
- ⊕ High mechanical durability
- ⊕ Filter media adapted to suit the specific application



Inferior quality

Anti-drain valve -

- ⊖ Produced with a simple design using inferior materials
- ⊖ Possible drainage from filter and oil ducts
- ⊖ Delay in pressure build-up on starting
- ⊖ Short service life
- ⊖ Possible damage to seal with leakage within a short period

Filter media -

- ⊖ Small filter surface area through irregular pleat spacing
- ⊖ Reduced dust holding capacity. Unfiltered oil can thus flow through the bypass valve within a short period
- ⊖ Poor filtration performance through inferior quality materials
- ⊖ Short service life
- ⊖ Inadequate separation performance
- ⊖ Only standard filter media for all applications



Oil filters in MANN-FILTER OE quality

+ Bypass valve

- ⊕ Precise function throughout the service interval
- ⊕ Valve opening pressure tuned to engine data
- ⊕ High quality elastomer seal
- ⊕ Bypass valve functions even at low temperatures (anti-freeze)
- ⊕ Maintains complete seal
- ⊕ Provides optimum oil supply to the engine



+ Element guide

- ⊕ Axial and radial positioning
- ⊕ Prevents movement of the element and thus leakage at the interface between the element and the screw cap



Inferior quality

⊖ Bypass valve

- ⊖ Precise function cannot be guaranteed
- ⊖ Valve opening pressure is not tuned to the engine resp. is undefined
- ⊖ Inadequate supply of oil to the engine
- ⊖ Poor quality seal or unsuitable material
- ⊖ Possible bypass with shut valve

⊖ Element guide

- ⊖ Only axial positioning
- ⊖ Without radial positioning, the element can be inadequately fixed, resulting in leakage

Oil filters in MANN-FILTER OE quality

+ Filter housing

- ⊕ Pressure-resistant
- ⊕ Reliable operation
- ⊕ No leakage
- ⊕ No oil loss
- ⊕ Corrosion-resistant



Inferior quality

Filter housing -

- ⊖ Thin, unprotected material
- ⊖ Possible leakage within a short period
- ⊖ Oil loss
- ⊖ Corrodible
- ⊖ Oil filter can burst

+ Release device

- ⊕ Filter can be changed quickly
- ⊕ No slippage
- ⊕ Filter can be released easily, even under difficult conditions and with restricted installation space



Release device -

- ⊖ Not available/poorly designed
- ⊖ Difficult disassembly
- ⊖ Can tip and slip
- ⊖ Release device may come off







Fuel filters



Fuel filters in MANN-FILTER OE quality

+ External seal

- ⊕ Complete seal to the engine compartment (vehicle)
- ⊕ Filter cannot loosen when the engine is running
- ⊕ Reliable at extremely low and high temperatures



Inferior quality

External seal -

- ⊖ Inadequate seal to the engine compartment
- ⊖ Possible loosening of filter when the engine is running – risk of fire
- ⊖ Loss of fuel – risk of fire

+ Screw cap

- ⊕ Exact fit through firmly moulded base of gasket
- ⊕ Seated gasket to ensure optimum seal
- ⊕ Mechanical and dynamic stability through ideal design of screw cap
- ⊕ Optimum surface coating for maximum corrosion protection



Screw cap -

- ⊖ Inadequately moulded base of seal
- ⊖ Possible loss of seal with associated risk of fire
- ⊖ Lack of stability can cause cover to split with risk of massive fuel leakage
- ⊖ Corrosion through lack of surface coating

Fuel filters in MANN-FILTER OE quality

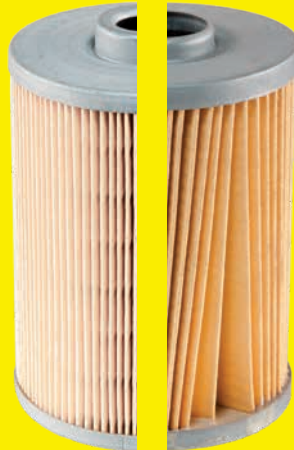
+ Internal seal

- ⊕ Filtered fuel completely sealed
- ⊕ Prevents by-pass of contaminated fuel
- ⊕ Reliable at extremely low and high temperatures
- ⊕ Resistant to commercially available fuels



+ Element

- ⊕ Corrosion-resistant metal end cap
- ⊕ Firm support pipe for high stability under pressure leads to high mechanical load capacity
- ⊕ Very efficient MULTIGRADE F filter media with maximum dust holding capacity provides optimum protection against wear
- ⊕ Meets vehicle manufacturers' demanding requirements for modern fuel injection systems
- ⊕ Long service life through star-pleated filter element
- ⊕ Special impregnation ensures even pleat spacing and position



Inferior quality

Internal seal -

- ⊖ No seal present
- ⊖ Filter leaks
- ⊖ Inadequate engine protection – wear on engine

Element -

- ⊖ No corrosion protection
- ⊖ Filter bellow inadequately supported as no supporting pipe present
- ⊖ Poor filtration due to inferior quality filter media
- ⊖ Does not meet vehicle manufacturers' current requirements for modern fuel injection systems due to poor filtration performance
- ⊖ Inadequate wear protection for the fuel injection system
- ⊖ Uneven and slanting pleats lead to increased pressure loss and reduced service life



Fuel filters in MANN-FILTER OE quality

+ Element guide

- ⊕ Axial and radial guide prevents movement of the element and thus leakage at interfaces

+ Canister

- ⊕ Optimum surface coating for maximum corrosion resistance
- ⊕ High compressive strength and pulsation resistance
- ⊕ Maximum operating reliability



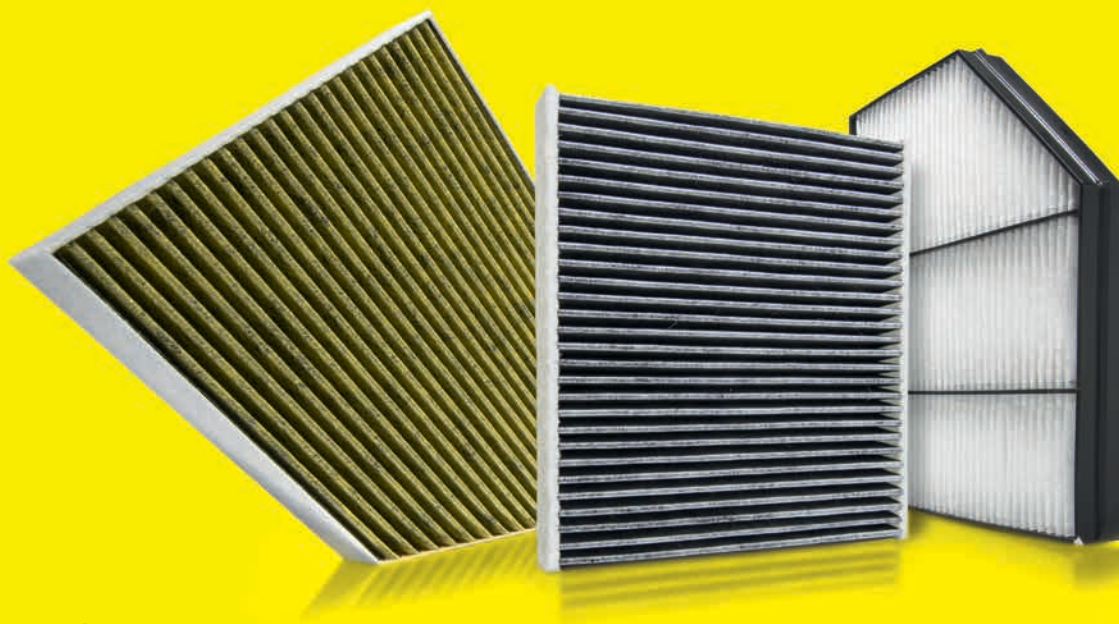
Inferior quality

Element guide -

- ⊖ The element may be inadequately fixed as there is no radial positioning, resulting in leakage

Canister -

- ⊖ No surface coating, resulting in corrosion
- ⊖ Canister can burst due to inferior material or inadequate thickness of canister
- ⊖ Severe leakage with loss of fuel possible through split in canister



Cabin air filters



Cabin air filters in MANN-FILTER OE quality

+ Filter media

These media simply do more!

- 1 **Pollen filter CU**
Up to 100% protection against particles, including pollen, diesel exhaust, tyre residues and even particulate matter
 - 2 **Pollen filter with activated carbon CUK**
The optimal amount of activated carbon protects against harmful gases, such as ozone, and unpleasant odours
 - 3 **FreciousPlus**
Biofunctional layer protects against allergens, bacteria and moulds
- ⊕ Use of selected filter media, appropriate for the requirements and the application
 - ⊕ Maximum capacity – even at high and low temperature extremes



Inferior quality

Filter media -

Inefficient filter media

- 1 Poor performance and poor filter capacity as a result of inferior quality media, only large particles ($> 5 \mu$) are retained
 - 2 Unpleasant odours and harmful gases are often removed inadequately or not at all as a result of insufficient activated carbon
 - 3 No additional protection against moulds and bacteria due to the lack of a biofunctional coating: increased risk of mould growth
- ⊖ The medium is generally unsuitable for the application, often even only one medium for all types of filter
 - ⊖ The pleats become deformed even with minor changes in temperature

Cabin air filters in MANN-FILTER OE quality

+ Manufacturing

The best materials perfectly manufactured!

- ⊕ Fits perfectly in the space available
- ⊕ Perfect pleating ensures maximum filtration performance
- ⊕ High pliability of the filter – regardless of how complex the installation space is
- ⊕ No loss of performance as a result of leaks



+ Filter change

Quick and professional filter replacement!

- ⊕ Detailed, illustrated, step-by-step installation
- ⊕ Instructions ensure easy and safe installation, even in the case of special shapes or installation spaces
- ⊕ Robust MANN-FILTER boxes protect the filters during transport



Inferior quality

- Manufacturing

- ⊖ Fits poorly in the space available
- ⊖ Crooked or wrinkled pleats lead to reduced filtration ability
- ⊖ Filter dimensions vary from one production batch to another
- ⊖ Poorly manufactured filters can cause rattling noises
- ⊖ The filter medium and the frame are often not properly bonded

- Filter change

- ⊖ Installation instructions not available or inadequate
- ⊖ Difficult to install due to the lack of pliability of the filter
- ⊖ The seal becomes stuck during installation and is displaced. Possible consequence: loss of sealing function
- ⊖ No transport protection, as the filters are generally only packaged in plastic film



Cabin air filters in MANN-FILTER OE quality



Protection for the car and the occupants

Kind to your car and your wallet!

- ⊕ Prevents the build-up of dirt, which can lead to failure of the air conditioning or heating system
- ⊕ No loss of cooling performance from the air conditioning system
- ⊕ Keeps dirt particles out of the car interior

Create an atmosphere of well-being!

- ⊕ Perfectly filtered air helps to maintain the driver's concentration and reduces the risk of accidents
- ⊕ Optimal protection for all occupants – in particular allergy or asthma sufferers and children – as a result of the consistently high filtration performance



Inferior quality

Protection for the car and the occupants



Beware of hidden costs!

- ⊖ The build-up of dirt can damage the air conditioning heating system. Possible consequence: higher maintenance costs
- ⊖ Increase in fuel consumption due to inadequate cooling by the air conditioning system
- ⊖ Reduction in the value of the car due to dirty interior

Don't risk inadequate protection!

- ⊖ Poorly filtered air can lead to headaches or tiredness and, therefore, an increased risk of accidents
- ⊖ Inadequate protection against allergens as a result of inferior quality materials and poor manufacturing
- ⊖ Risk of allergens, bacteria, mould spores and particulate matter



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