

MORE IDEAS. INCREASED PERFORMANCE. EXTRA COMPETITIVE ADVANTAGE.

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FILTER ELEMENTS MADE BY MANN+HUMMEL



# *Why the vehicles of the future will* **still be running with our filters.**



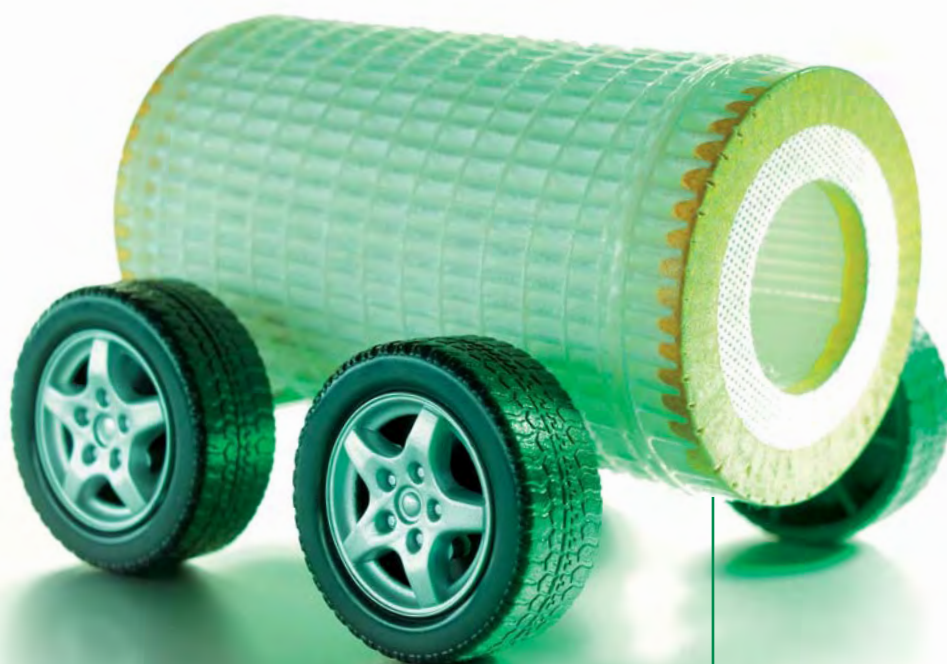
**Filter elements now have to meet more demanding requirements, which will in future become even more complex, detailed and elaborate – in short, more varied and stringent.**

We are however not simply coping with this trend, we are driving it. With pioneering engineering achievements, state-of-the-art development and production technology. We are pleased to offer more. Visibly. Noticeably. Demonstrably. Calculably. Our filters provide outstanding performance in many fields: gradient filter media containing nanofibres, life-time filters with glass fibre filter media, fuel filters which make it possible to retain even the finest particles of dirt, as well as high dirt absorption capacity and long service life. There are also the achievements of the more than 9,100 people we employ: world-wide production and development capacity, global presence, more than 150 million filters produced per year, and always there when you need them. They now ensure that, with gas or fluid filtration, service-orientated world-wide presence or test rig processes, when we say “Made by MANN+HUMMEL” it is a byword for optimum solutions.



*Reliable protection for modern engines – supplied efficiently and consistently by MANN air filters. They set the standard in the field of air filtration.*





*We will always support you as a competent business partner, working with you to shape the future.*

*With innovative ideas and custom-made solutions.*

*pecifically developed for restricted installation space, vehicles achieve optimum performance with PicoFlex with CompacPlus® filter elements.*



# *For you, 150 mill. filter elements per year are* **economical and provide competitive advantage.**



**We keep this promise with every filter.  
Smart and dynamic.**

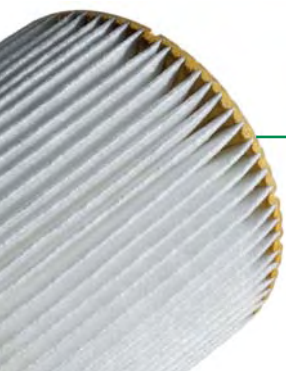
Take, for example, the innovative air filter element with protective coiled thread and resin-based end cap. Its ingenious feature: the element only contains filter media and an end cap which also acts as a seal. It is a filter which combines maximum performance and economy within the smallest package. Or the Multigrade F\_HE+ fuel filter with a combination of two synthetic fibre layers which efficiently filter the

finest particles of dirt and provide long service life through their high dirt absorption capacities.

We offer economy and competitive advantage in all possible areas. From filters with plastic end caps and many diverse additional functions, special locating devices and connections, to simple flat filters which devour every speck of dust.

Whether a standard product or individual filtration solution – the benchmark for all filter elements is always your objective, your specification. You obtain economical solutions which are precisely tailored to the installation space available in any engine, however small and cramped or complicated it might be, and to every job specification, however complex and innovative it is.

How are we able to offer you all these opportunities? Through international transfer of knowledge, comprehensively and consistently utilising the experience we have amassed over decades, as well as our innovative and manufacturing competence. So that you maintain your competitive edge, with us as your business partners, against global competition.



*MANN+HUMMEL fuel filter elements offer  
that little bit extra: even more compact design,  
enhanced filtration efficiency and longer service life.*



*Filters and filter elements have to perform many tasks, and for each one, we will find the right solution for you. Promising more: more performance from our filters and filter elements, more economically and specifically creating added value for you.*



*With PreLine®, MANN filters achieve optimum water separation in diesel fuels and thus protect the fuel injection system against corrosion and abrasion.*



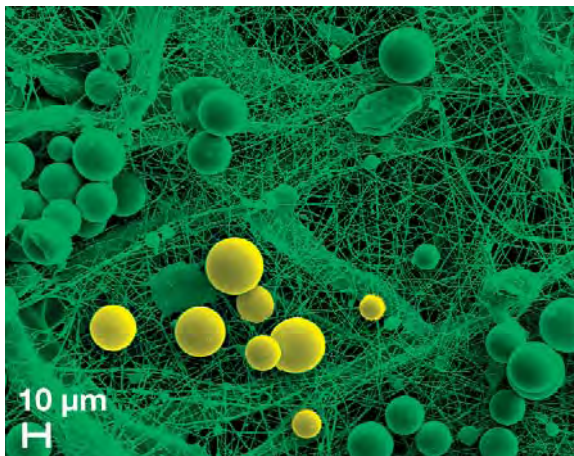


*Our principle is simply to make filters better ... and our combi-filter adsotop®, for example, clearly shows just how much better. Harmful gases such as nitrogen oxides (NOx), fuel vapours and ozone are retained in pores which are 10,000 finer than a human hair, thus ensuring a healthy environment in the passenger compartment.*



*Whether it is MANN cabin filters, particle filters or adsotop® combi-filters, we create a better environment in the passenger compartment.*

# *We are pleased to be ahead of the market* **with giant strides and with nanofibres.**



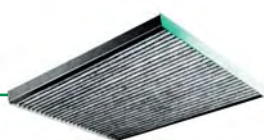
**When it comes to developing more efficient filtration solutions, we have it all: competence, experience, curiosity.**

We have, for example, developed nanofibres for air filter elements. Specific injection technology is applied to mix them with conventional fibres. This produces a gradient medium which can filter out even the finest particles from the air flow, but without shortening service intervals.

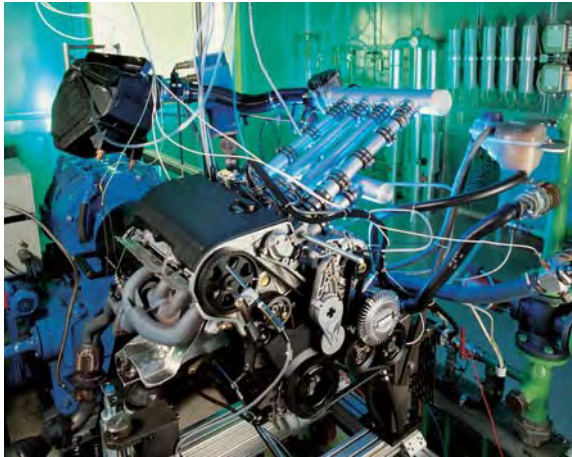
Our constant aim is to improve the filters so they can more effectively fulfil their functions in so many different areas, from air filtration to reduction of nitrogen oxide emissions. To achieve even longer service life, even better filtration efficiency are the central criteria. With the fully synthetic oil filter HU 718/5, we have developed a filter element which is extremely resistant to ageing and can significantly extend service intervals. With our urea filter U58, world-wide series production will commence for the first urea filter for commercial vehicles – and it's freeze-proof, too. Through the use of glass fibre filter media, we have developed products for the gearbox and hydraulic filter sector which are lifetime parts with maximum dirt absorption capacity, and which open up completely new opportunities.

Let us know your specific current and future filtration requirements. We are pleased to press ahead with good ideas. Take, for example, the HC adsorber fitted into engines for the US market. Designed as a lifetime part, it adsorbs hydrocarbons which diffuse from the air intake system when the engine is switched off, retaining environmentally harmful fuel vapours in an activated carbon storage medium before they can escape into the atmosphere.

*Optimum filtration performance: the HC adsorber retains hydrocarbons and meets the strictest tolerances.*



*Close to you in thought and deed.*  
**At all times and everywhere.**



**Global markets demand more than global thinking. They require both global and local action.**

Above all, this means short routes, local content, low logistic costs, and local people to contact if questions and problems arise. That is why you will find us wherever our customers may be. Whether logistically or physically close, the know-how of an experienced and large business partner is available at all times.

Our development and production network currently spans the globe, and we are constantly and consistently working to extend this network. We will continue with our maxim – that you should be able to purchase as many parts and sub-components as possible in the country where they are to be fitted. No matter where it is produced, we promise you genuine MANN+HUMMEL quality.

You can of course rely on us, even if we do not actually have local production facilities. We supply worldwide and on time, and thus meet every logistic challenge. Whether it is our ability to accurately supply 25 variants of a truck air dryer cartidge to 16 subsidiaries of one of our customers in four different continents, or provide you with a specific filter which is required at one of your locations at a particular time.

What do you gain from so much experience and ability to supply, local presence and service? The fact that you can rest assured that each and every one of our employees is there for you, wherever and whenever you expect more service and enhanced performance.



*Spin-on oil filters from MANN+HUMMEL effectively and consistently protect the engine.*





*In a single year, we produce and despatch some 75 million spin-on filters and 80 million filter elements world-wide. We utilise our resources and capacities in such a way that we can fully respond to your requests and requirements.*

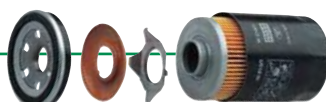


*MANN oil filter elements with the metal-free filter element EVOTOP® are efficient and eco-friendly, conserve resources and can be disposed of easily.*



*Not everything which is new and highly promising is really good. That is why "Made by MANN+HUMMEL" stands for added value through competence based on solid experience. From individual filters to testing facilities, from the manufacture of samples to tool making, right up to simultaneous engineering and the quality assurance system.*

*Enhanced protection for the engine, better service, more environmentally friendly: MANN oil filters offer optimum solutions for every application.*



# *Good ideas set the pace.*

## **Above all, they are custom built.**

**We are often asked what makes our ideas and work stand out.**

Is it the on-site development of new filter media which meet the most demanding requirements, both now and in the future? Or is it the fact that, through competent design, our customers have access to the latest filter media and elements which are perfectly adapted to meet even the most difficult packaging constraints?

There are many things that set us apart: local and prompt manufacture and testing of samples, computer-aided project management and quality system. In fact, we are ahead of the market in many areas. The same applies to our test rig technology. Equipped with state-of-the-art instruments and laboratories, we can test both individual components and entire systems, and carry out all relevant tests – from multi-pass to pressure pulsation and adsorption testing.



These are our distinguishing features. However, in our opinion, it is our experience which provides that little bit more, that crucial extra. It is experience which enables us to develop innovative designs, to prepare completely new filtration solutions ready for series production, to actively look to the future. In order to achieve all this, to make the right decisions for this new production process or that innovative technology requires a sound knowledge of the automotive market – something we have possessed for decades, and will build on in the future.



*With outstanding separation efficiency for even the finest particles, Multigrade F\_HC exceeds the stringent requirements specified by the fuel injection system manufacturers.*







**MANN+HUMMEL GMBH**

71631 Ludwigsburg, Germany ▪ Phone +49 (71 41) 98-0 ▪ Fax +49 (71 41) 98-25 45  
www.mann-hummel.com ▪ e-mail: [info@mann-hummel.com](mailto:info@mann-hummel.com)