

A breath of fresh air

Innovative cabin filters

EN 15695 compliant



Efficient filtration of fresh and recirculated air Solutions for OEM products

MANN+HUMMEL has been a competent development partner to the automotive industry for more than 70 years. In the area of cabin filters for cabins of agricultural machinery and equipment the company fulfils all needs and requirements for fresh and recirculated air. The MANN+HUMMEL cabin air filter center in Himmelkron in the north-east of Bavaria/Germany combines extensive

filter media know-how with comprehensive production and testing facilities. This is where MANN+HUMMEL conceives and develops high quality, reliable cabin filters for many varied applications and customer requirements. Strict quality controls serve to ensure a consistent standard – regardless of whether the filters are produced in Germany or at an international location.



Invisible dangers

Drivers of agricultural tractors or self-propelled sprayers come into contact with potentially hazardous substances in their daily work which are often invisible to the human eye.

Herbicides and fertilizers enable modern agriculture to remain efficient, economic and competitive. These partly consist of aerosols or vapours. But even without the use of chemical substances, dust particles are able to penetrate the cabin. All these air pollutants are potentially harmful to the driver.

The European standard EN 15695 regulates the protection of the drivers of agricultural tractors and self-propelled sprayers against air-borne contaminants. Cabins classified according to EN 15695 have to use appropriate filtration equipment to reduce the exposure of machine operators as far as possible and provide improved protection against harmful substances.



MANN+HUMMEL cabin filters – for excellent protection in the cabin

The R&D work carried out by MANN+HUMMEL is focussed on compliance with the European standard EN 15695. The standard defines four categories for the scope of protection required for a cabin against hazardous substances. The standard also stipulates the requirements for the filter elements used in each protection category and also the method how compliant filter elements have to be tested.

Category 1 does not require driver protection and therefore there is no need for a filter. MANN+HUMMEL offers special solutions with a variety of filter media and media combinations to comply with the respective requirements of the other 3 categories.

Protection against dust is taken care of in category 2: for cabins in this category MANN+HUMMEL offers filter elements using a cellulose or non-woven medium.










The third category defines values for protection against dust and aerosols in the cabin. MANN+HUMMEL designs cabin filters with an additional glass fibre medium to comply with the requirements of this category.

Category 4 defines protection against dust, aerosols and vapours. MANN+HUMMEL offers filters which comply with this highest protection category using a combination of cellulose or non-woven, glass fibre and activated carbon medium.

MANN+HUMMEL develops customised solutions for cabin filters. The R&D engineers at MANN+HUMMEL support our OE-customers with the configuration of the right filter for each category and provide the required test certificates. In addition, customers benefit from efficient product solutions and excellent flexibility in terms of dimensions and shape of the respective filter elements. This is the only way to ensure the required protection in the driver's cabin.

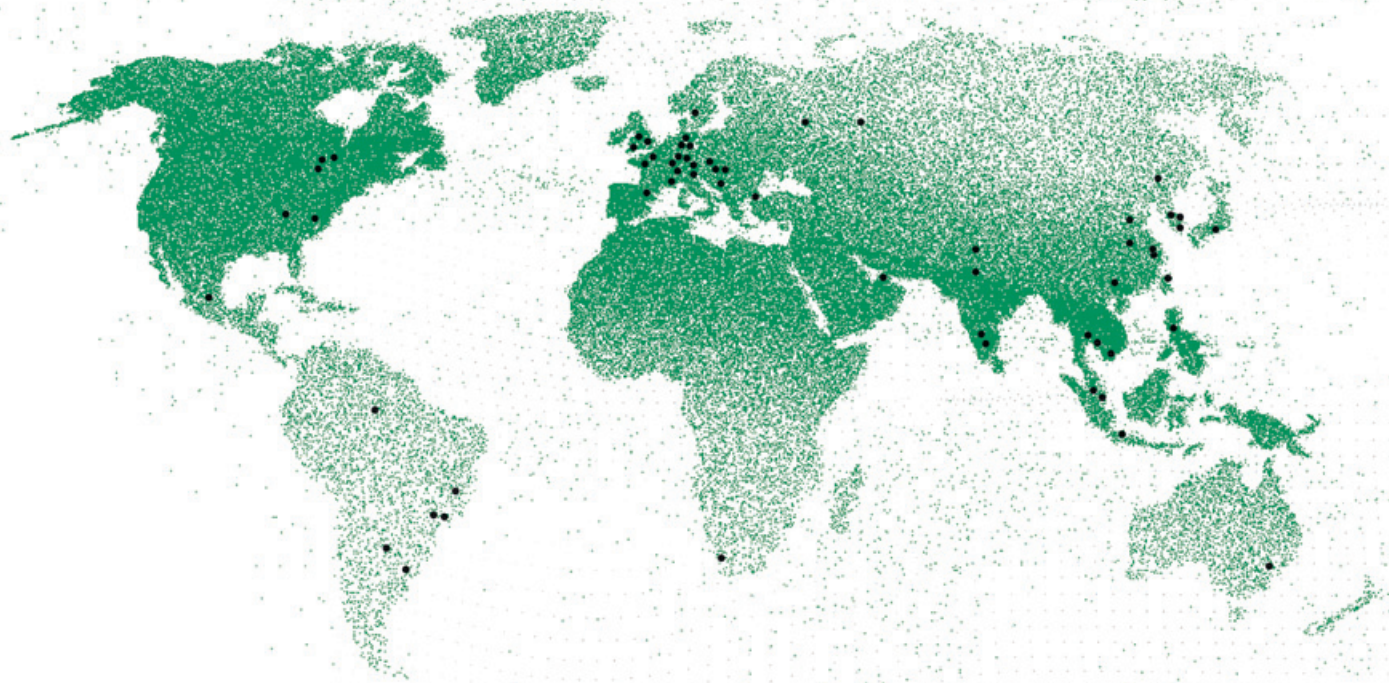


Protection requirements – categories according to EN 15695

Category	Category 1	Category 2	Category 3	Category 4
Degree of protection	No protection against hazardous substances	Protection against dust	Protection against dust and aerosols	Protection against dust, aerosols and vapour
Particle separation		Separation of PTI fine $\geq 99.0\%$ (acc. to ISO 14269-4)	Separation of PTI fine $\geq 99.0\%$ (acc. to ISO 14269-4)	Separation of PTI fine $\geq 99.0\%$ (acc. to ISO 14269-4)
Aerosol separation			Separation of DEHS / DOP $\geq 99.95\%$ (acc. to EN 1822-2/-5)	Separation of DEHS / DOP $\geq 99.95\%$ (acc. to EN 1822-2/-5)
Gas adsorption				Adsorption of 500 ppm C6H12: 10 ppm breakthrough ≥ 70 min (acc. to EN 12941)
MANN+HUMMEL filter media and media combinations	A cabin filter is not a requirement	Cellulose / Non-woven 	Cellulose / Non-woven Glass fibre 	Cellulose / Non-woven Glass fibre Activated carbon 



MANN+HUMMEL Group



The MANN+HUMMEL Group is a company with international operations and employs more than 14,750 people worldwide at 50 international locations.

The company develops, produces and sells technically complex components and systems for the automotive industry and many other fields. A key area is high

quality filtration products for vehicles, engines and industrial applications. The OEM business with global market leaders and producers of vehicles, machines and installations defines the quality and performance of the products. Filters for the international aftermarket are sold under numerous international brands as well as under the group's own MANN-FILTER brand.

MANN+HUMMEL Industrial filtration

The Industrial Filtration Business Unit with its headquarters in Speyer (Germany) is specialised in meeting the requirements of off-highway vehicle and engine applications, compressed air and vacuum technology, mechanical engineering and plant construction.

For these and other industrial fields MANN+HUMMEL Industrial Filtration offers high performance products for the filtration and separation of air, gases and liquids.

Thanks to an efficient and well-organised partner network and global sales network the products are readily available at almost all locations.

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