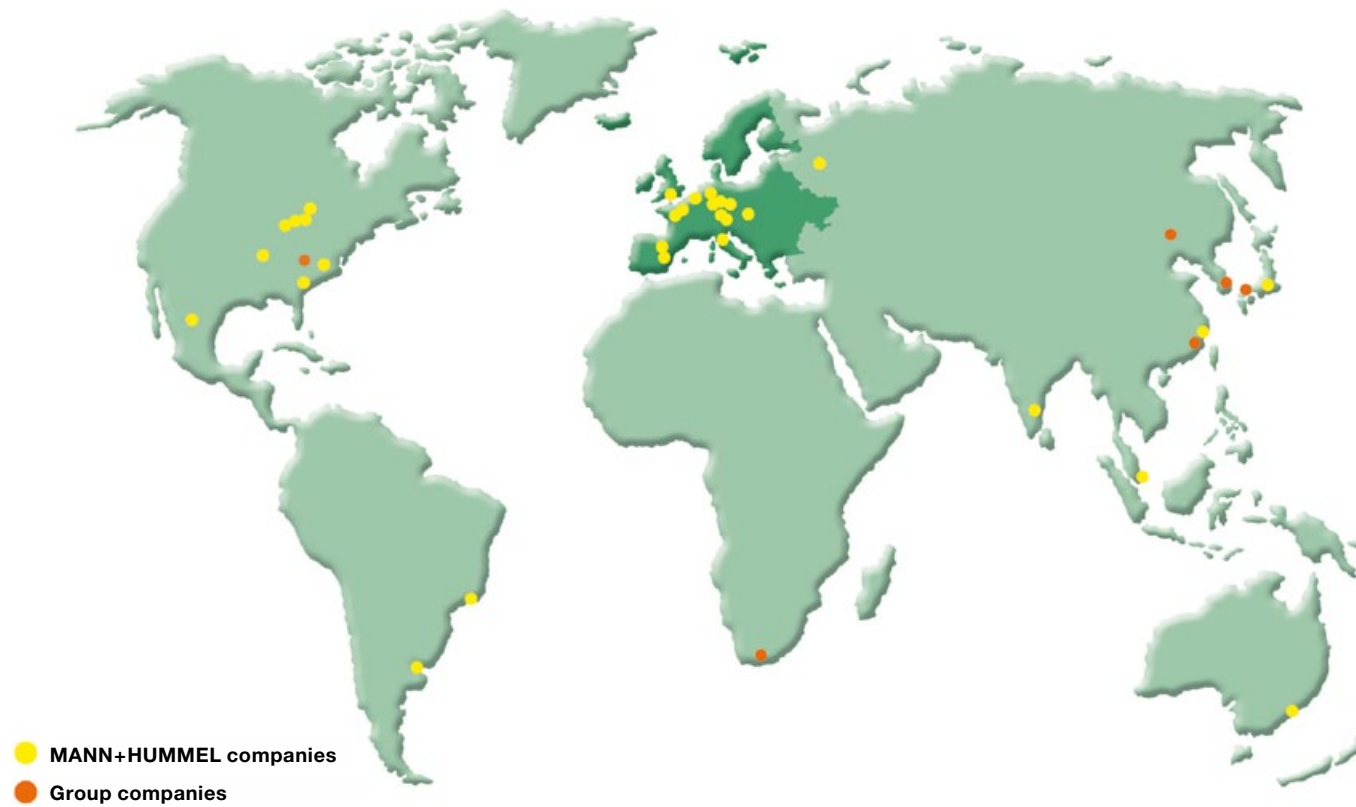




## Advantages for your rolling stock

### Everything from a single source

The extensive MANN+HUMMEL product range for railway vehicles covers nearly the whole range of filter requirements for your rolling stock. For all system areas whether for the diesel engine, transmission, brake compressor or driver's cabin it is important that you can procure everything from a single source. That saves time and money and also means you can rely on a consistent level of service and quality.

### Excellent quality

Railway vehicles are subject to a high utilisation level and have to deliver maximum performance. The potential consequence of inferior filter elements is excessive wear. MANN+HUMMEL products are manufactured from high quality materials and are subject to stringent wear tests. As a result with every service you benefit from a quality standard which matches the OEM standard. Only original filters from MANN+HUMMEL can provide you with the highest level of reliability, shorten downtimes and get the maximum economic benefit from each locomotive.

### Reliability

International railway traffic depends on punctuality and continuity – something you can only achieve with locomotives which are always ready for operation. The high separation efficiency of MANN+HUMMEL filters ensure that wear is reduced to the minimum. This helps to significantly lengthen service intervals and shorten the downtime of your locomotives. High filter efficiency can reduce or even in some cases eliminate expensive repairs.

### Worldwide network

Railway vehicles are in use all around the world. A distribution and service network therefore has to ensure that the right filter is always available at each location. The MANN+HUMMEL global distribution network ensures the high availability of our products. Our quick and uncomplicated network of distribution partners ensure you witness the benefits almost everywhere in the world.

## MANN+HUMMEL Group

The MANN+HUMMEL Group is an international company and employs over 14,400 people at 41 locations worldwide.

The group develops, produces and distributes innovative technical components and systems for the automotive industry and many other industrial 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 MANN-FILTER brand.

### MANN+HUMMEL Industrial Filtration

The Industrial Filtration Business Unit with its headquarters in Speyer, Germany, specialises 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.



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## Diesel engines



### Air cleaners

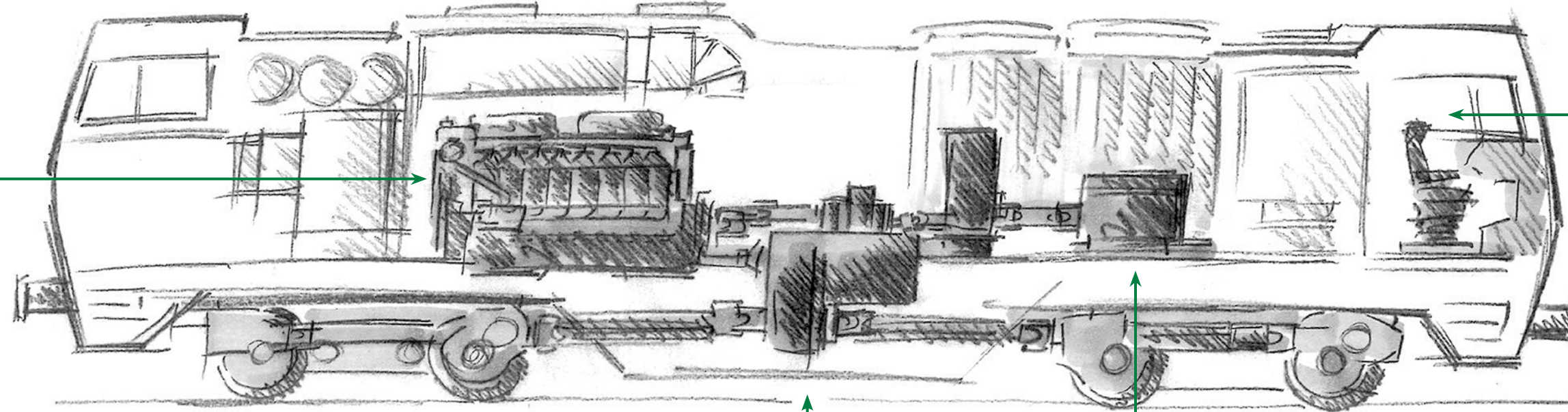
Robust single or two-stage air cleaners with very good filtration characteristics for use in environments with medium to high dust loads.



### Cyclone pre-separators

Pre-separators with cyclone cells suitable for applications with extremely heavy dust conditions. A separation efficiency of up to 99.5% is possible.

## MANN+HUMMEL – the complete package in OEM-matching quality

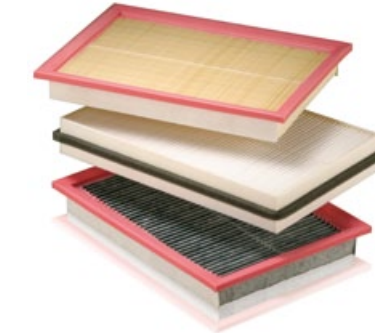


## Driver cabin and ventilation



### Air cleaners

Air cleaners for the driver's cab provide the operator with filtered air and retain contaminants.



### Cabin filters

MANN+HUMMEL cabin filters filter pollen and other undesired particles out from the air and thus provide a better working climate inside the vehicle.

## Transmission



### Ventilation filters, oil separators

Ventilation filters and oil separators reliably prevent contaminants and water from the environment penetrating the system when the oil level in the gearbox fluctuates.



### Oil filters

Gearbox oil filters preserve the quality of the gearbox oil and therefore ensure smooth operation.



### Gap-type filters

These filters are suitable for the filtration of high and low viscous lubricants in gearboxes and large combustion engines. They can be cleaned during operation and are easy to maintain and are characterised by a long service life.



### Oil filters

High quality MANN+HUMMEL oil filters are designed to work under difficult operating conditions and preserve expensive compressor oil.



### Air/oil separators

Air/oil separators are available in many different designs and ensure ideal conditions for the treatment of compressed air.

## Brake compressors



### Air cleaner

Reliable air cleaners for high air flow rates in a compact installation space.



### Oil filters

Oil filters with modern media, equipped with high dirt holding capacity and high filter fineness ensure long service intervals and high process reliability.



### Lubrication oil centrifuges

The use of centrifuges effectively separates contaminants such as soot and metal abrasion particles from the lubricating oil of diesel engines.



### Crankcase ventilation

In the area of crankcase ventilation our highly efficient oil separators provide excellent protection for the turbocharger and components fitted downstream.



### Fuel filters

MANN+HUMMEL fuel filters separate ultra-fine particles from fuel and thus efficiently protect the fuel injection system against wear and contaminants.