



MANN+HUMMEL CRT®

Diesel particulate filter with continuous regeneration



MANN+HUMMEL CRT®

The CRT® diesel particulate filter is designed for applications in the medium to high power output range with a high and fairly con-

stant power consumption. The main advantages are a long life, high separation efficiency and flexibility. The elimination of machine

downtimes via the extremely long service intervals are significant in order to achieve low running costs with large machines.



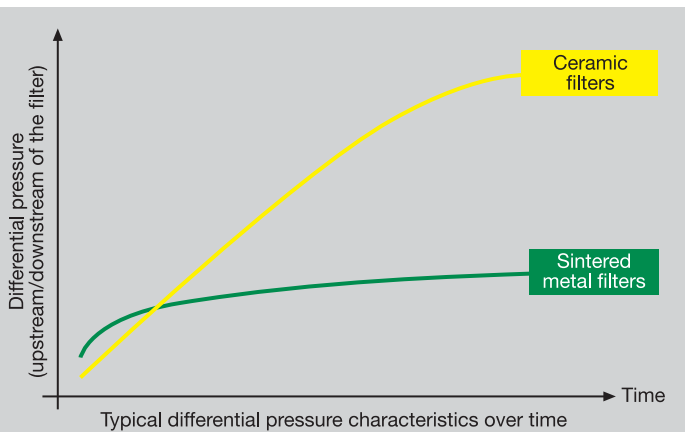
Advantages

- Low running costs via continuous operation of the machine (no downtime). Regeneration occurs automatically.
- Low service costs. The CRT® system with its

sintered metal filter has an ash holding capacity which is considerably greater than conventional ceramic filters and therefore has very long service intervals.

- Easy to clean without the need for additional and expensive cleaning cabins
- Lifetime parts with no need to replace the sintered metal filter during the lifetime of the engine equals low maintenance costs.
- High efficiency via sintered metal technology with a particle separation efficiency higher than 99% for particles in the range of 20-300 nm. The soot emissions are not reduced, but rather almost eliminated.

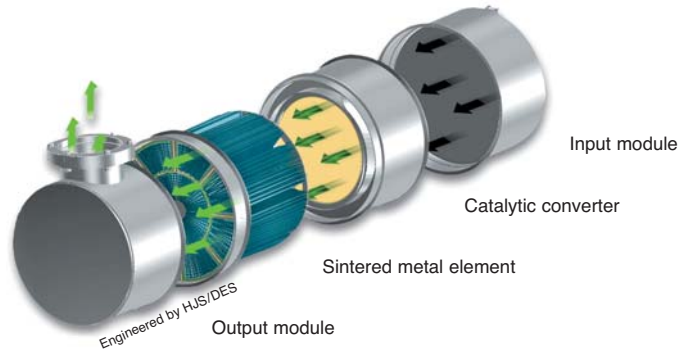
- CO and HC reduced by more than 90% by means of an oxidizing catalytic converter fitted upstream.
- Compact design aids in making flexible installations possible. The use of sintered metal technology enables achievement of exhaust backpressures which correspond to the specifications of the engine producer and therefore represent no risk to the engine.
- Conventional ceramic filters operate with considerably higher backpressures which reduce the engine output and additionally increase fuel consumption (see picture).



The powerful solution up to 560 kW

Typical applications

Diesel applications with medium to high power output range with a high and fairly constant power consumption (e.g. dump trucks, mobile excavators, wheel loaders and track-type vehicles). Use of the CRT® system requires an exhaust gas temperature $>260^{\circ}\text{C}$ at the filter. However, depending on the emission values, it is not necessary for this temperature to be permanently available.



System components

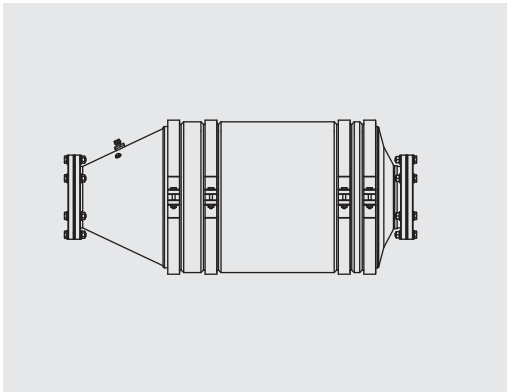
- Filter module with oxidating catalytic converter
- Input/output module including seals and clamping rings for easy assembly
- Detailed documentation

Accessories

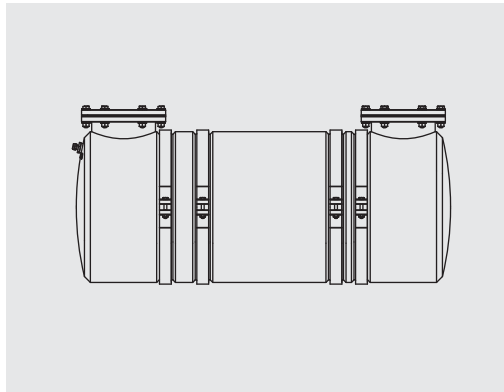
- Data recording device (including 1x pressure and as an option 1x temperature sensor) for the recording of pressure and temperature characteristics (compulsory regulation in Switzerland)

Optional

- The input/output module is available as an axial or radial version
- The filter is also available with a platinum coating for engines with high PM emissions



Axial version



Radial version

Specifications

Overview of variations

Output [kW]	Catalytic converter	Filter [m ²]	Øexternal [mm]	Length* [mm]	Separation efficiency [quantity of particles**]	Weight [kg]
75-130	10.5"x3"	6.5	319	790	>99%	46
	10.5"x3"	8.1	319	880	>99%	58
130-210	10.5"x3"	8	343	790	>99%	58
	10.5"x3"	8.1	319	880	>99%	58
	10.5"x3"	10.2	343	880	>99%	62
210-250	10.5"x6"	8	343	870	>99%	62.5
	10.5"x6"	8.1	319	955	>99%	63
	10.5"x6"	10.2	343	955	>99%	67
250-320	10.5"x6"	10.2	343	955	>99%	67
320-440	2x10.5"x3"	2x8	je 343	je 790	>99%	116
	2x10.5"x3"	2x10.2	je 343	je 880	>99%	124
	2x10.5"x3"	2x8.1	je 319	je 880	>99%	116
440-560	2x10.5"x6"	2x10.2	je 343	je 955	>99%	124

* Details for radial – radial version

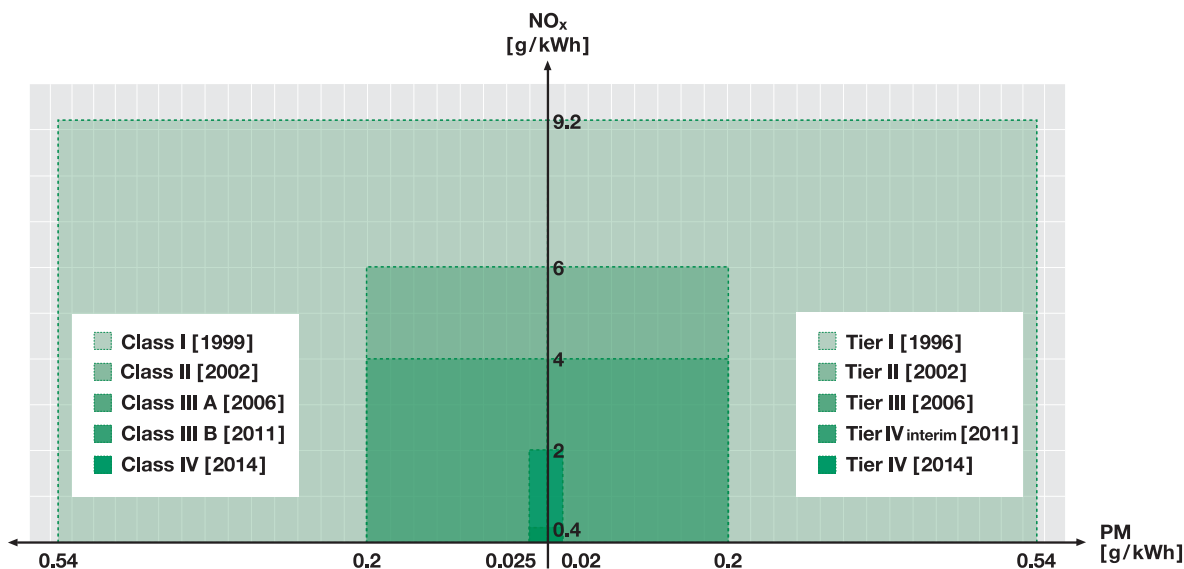
**Particles in the range of 20-300 nm

Permanent temperature operation for SMF®*	max. 850°C
Permanent temperature operation for C-SMF®**	max. 650°C
Filter material	high-temperature chromium nickel steel
Filter housing material	1.4301
Ash holding capacity	max. 50 g/l filter volume
Separation efficiency (particles in the range of 20-300 nm)	>99%
Separation efficiency (relating to soot)	>97%

* SMF®: Sintered metal filter

** C-SMF®: Coated sintered metal filter

Legal conditions



EU – Non-road

EU directive 97/68/EU
for engine-power class 130-560 kW

USA – EPA Non-road

regulations 40 CFR 89, 40 CFR 1039 and
40 CFR 1068 for class 130-560 kW

Chemistry of the exhaust gas cleaning

The regeneration of the CRT® system is made continuously and is fully automatic. Gas emissions of carbon monoxide (CO) and hydrocarbons (HC) are reduced by more than 90% in the oxidating catalytic converter mounted upstream of the filter. The sintered metal filter then reduces the particle emissions by more than 99% for particle concentrations in the range 20-300 nm. In the particulate filter the NO₂ formed in the oxidating catalytic converter reacts with the soot and continuously burns off the soot

when the exhaust gas temperature reaches 260°- 450°C.

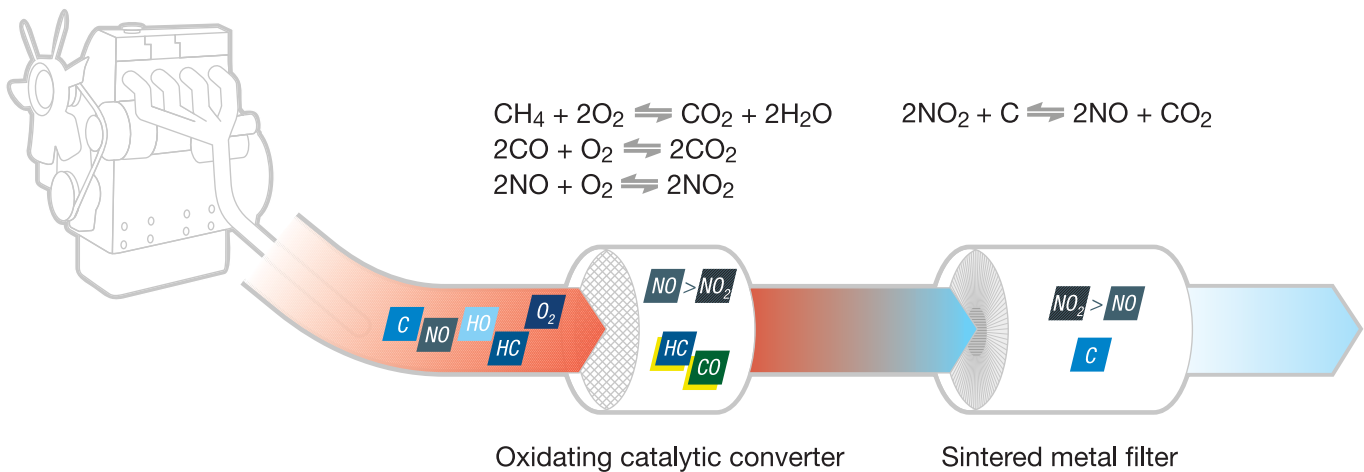
Requirements for use of the CRT® system:

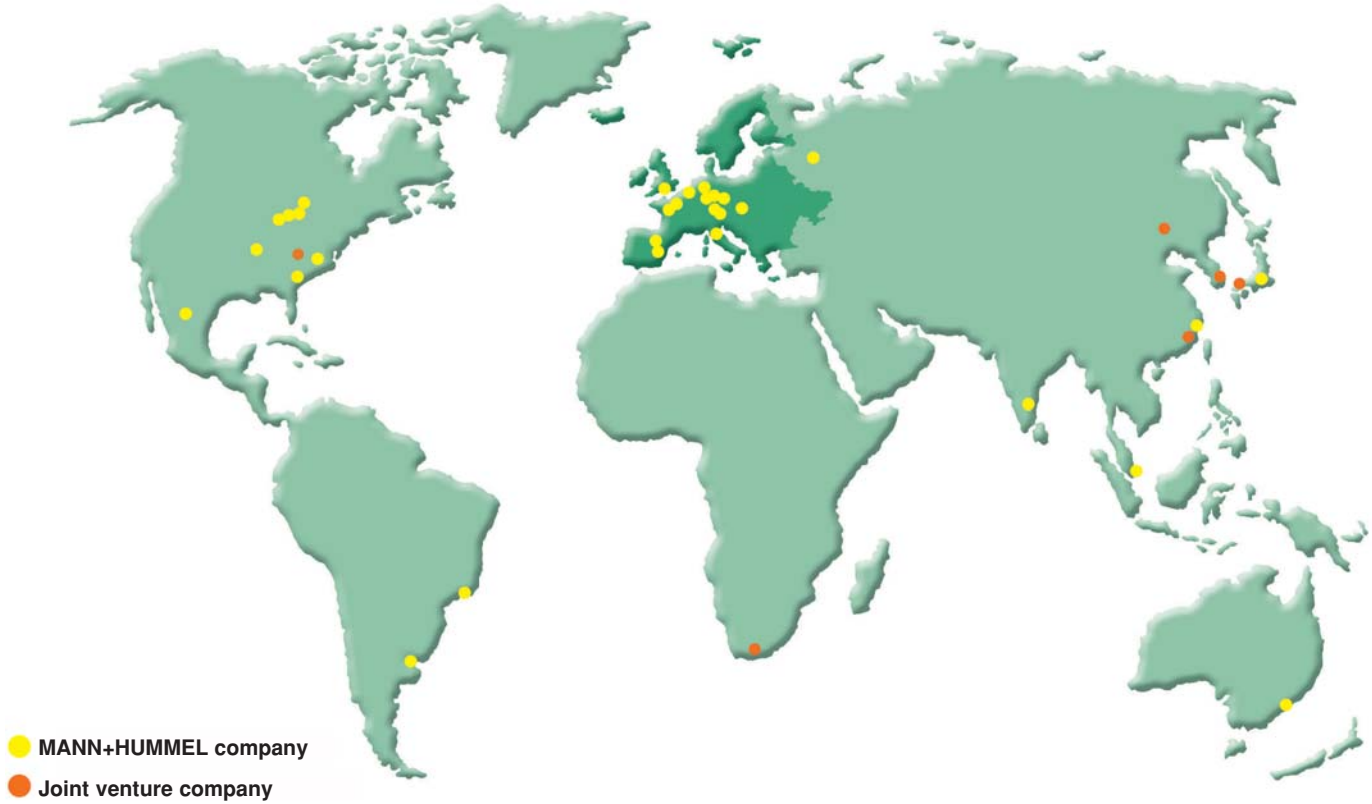
- Exhaust gas temperatures at the filter between 260°- 450°C.
- It is only necessary to obtain the temperature of 260°C at times, depending on the particle volume and NO_x emissions. An individual analysis of the emission values is recommended.
- Engines with emissions unfavourable for the CRT® system (i.e. insufficient NO_x

and/or excessive particle volume) can be fitted with a filter with a platinum coating.

- Operation with low sulphur diesel according to DIN EN 590 with a max. of 50 ppm of sulphur
- Use with Class I, Class II, Class III A or Class III B engines or with comparable classes (e.g. USA)
- Permissible backpressure must be taken into account
- The engine output is in the range 75-560 kW

Exhaust gas cleaning with a CRT® system – detailed illustration





MANN+HUMMEL Group

The MANN+HUMMEL Group is an international company with its headquarters in Ludwigsburg, Germany. The group employs more than 11,500 people worldwide at more than 41 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 a variety of international brands as well as under the MANN-FILTER brand.

MANN+HUMMEL Industrial Filters

The Industrial Filters Business Unit has its headquarters in Speyer, Germany. The business unit is specialized in meeting the special require-

ments of off-highway vehicles and engine applications, compressed air and vacuum technology, mechanical engineering and plant construction.

MANN+HUMMEL Industrial Filters offers high performance for these fields and other fields which have a requirement for the filtration and separation of air, gas and liquids.



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