



# Unrestricted access to Low Emission Zones



100% Diesel Particulate Filter Systems for Commercial Vehicles

SMF<sup>®</sup>-Sintered Metal Filter  
SMF<sup>®</sup>-AR



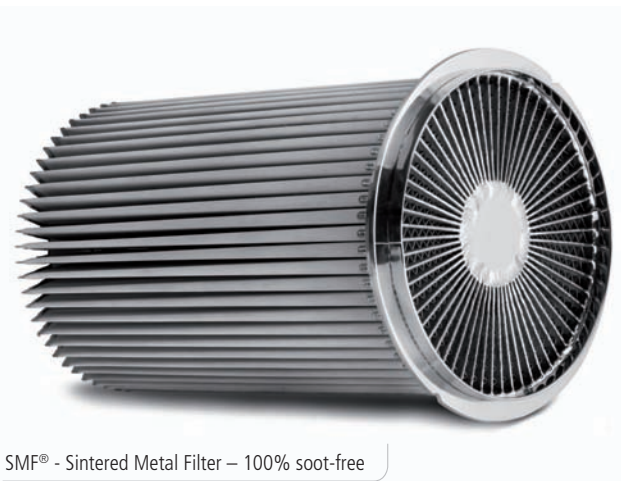
# HJS Exhaust-Aftertreatment-Systems

## Commercial vehicles – guaranteeing mobility

### SMF®-Sintered Metal Filter

#### 100% soot-free

The centrepiece of all HJS exhaust treatment systems is the sintered metal filter (SMF®), with which HJS sets new standards in the global marketplace and for which HJS was awarded the 2003 German Environment Prize. This enclosed 100% filter reduces the emissions of soot particles, including fine particulate matter, down to the limit of detection, with a filter efficiency of over 99%.



SMF® - Sintered Metal Filter – 100% soot-free

#### Reliable and low on maintenance

The SMF® and the systems based on it are exceptionally reliable in operation, low on maintenance and also benefit from a long service life. HJS systems have proved their worth over many years in thousands of car, bus and truck applications. The advantages offered by an SMF® result from its special design as well as its use of sintered metal. The clogging known from conventional ceramic filters with their honeycomb structure is made impossible by the pocket-type construction of the SMF®. Exhaust backpressure is minimised by the fact that there is an unrestricted inflow of gas into the filter pockets from outside. In addition, the ash holding capacity of an SMF® is three to four times as high as that of a conventional ceramic filter system, which significantly increases the mileage before an HJS filter requires cleaning, including in the case of older commercial vehicles with particularly high oil consumption. For, whereas a ceramic filter re-

quires cleaning after just a short period of operation, an SMF® is capable of several years of operation before maintenance is needed. This makes it possible to minimise the running costs for service and maintenance as well as the associated downtime costs, which means the operator can make considerable cost savings over the life of a vehicle.

#### Catalytic coating

For OE applications or in the case of vehicles that are operated at low temperatures, the SMF® can be provided with a specially developed catalytic coating to support the process of filter regeneration.

#### Flexible solutions for different applications

Thanks to their modular construction, sintered metal filters can be used in various systems and versions to suit different applications. They are suitable both as original equipment (OE) and also for retrofitting in commercial vehicles.

#### SMF® advantages at a glance

- ✓ Over 99% reduction of soot particles, incl. fine particulate matter
- ✓ Suitable for OE and retrofitting applications
- ✓ High ash holding capacity and low exhaust backpressure
- ✓ Catalytic coating provides extended temperature window
- ✓ Absolutely low-maintenance and economical
- ✓ Reliable with long service life
- ✓ 100% recyclable

#### Operating principle SMF®-AR

HJS's SMF®-AR system filters the exhaust-gas flow until an optimum quantity of soot for regeneration has been collected in the filter. The system makes use of the positive active properties of a fuel additive that on the one hand lowers the soot's ignition temperature and on the other hand significantly increases its burn-off speed. The soot held back in the filter can, therefore, be burned off automatically in a spontaneous regeneration process when the exhaust gas has an appropriate temperature of 400°C or higher.

If, however, these temperatures are not reached – which is frequently the case in city traffic – the system's active regeneration assistance function cuts in.



## Modular SMF®-AR system – with active regeneration

Commercial vehicles, in particular, which are frequently driven in inner-city, stop-and-go traffic, often do not reach the minimum exhaust-gas temperature necessary for regeneration of the filter. This means conventional filter systems in most cases can't be fitted, because the danger of 'soot overload', i.e. clogging of the filter, increases rapidly.



Soot ignition following initial ignition

In addition, a self-learning driving-cycle recognition functionality generally prevents a regeneration cycle that has already started from being interrupted when the engine is switched off.

What's more, the high soot-holding capacity of the SMF® allows not just one single ideal moment for regeneration, rather regeneration can take place within a wide time slot. If, then, one or even several regeneration cycles are cancelled owing to the engine being switched off, this poses absolutely no problem in respect of safe and reliable operation of the SMF® system.

A further advantage of the SMF® is its high ash holding capacity, which allows for long servicing and cleaning intervals.

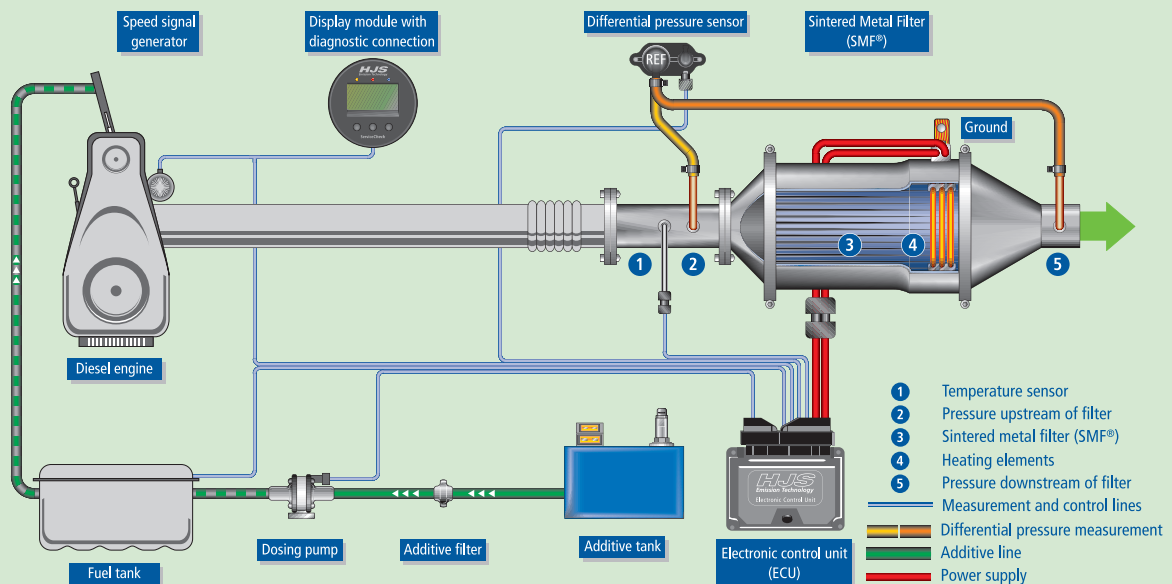


SMF®-AR system with heating elements that encircle the filter

Suitable for such applications are active systems like the SMF®-AR system developed by HJS, in which – independent of the temperature of the exhaust gases – the filter can be regenerated (cleared of the soot) in almost all engine operating conditions.

### Active, thermoelectric regeneration

The control unit not only triggers ignition of the soot, but also doses the optimum amount of additive, monitors the filter load and, with the help of sensors, calculates the best timing for regeneration.





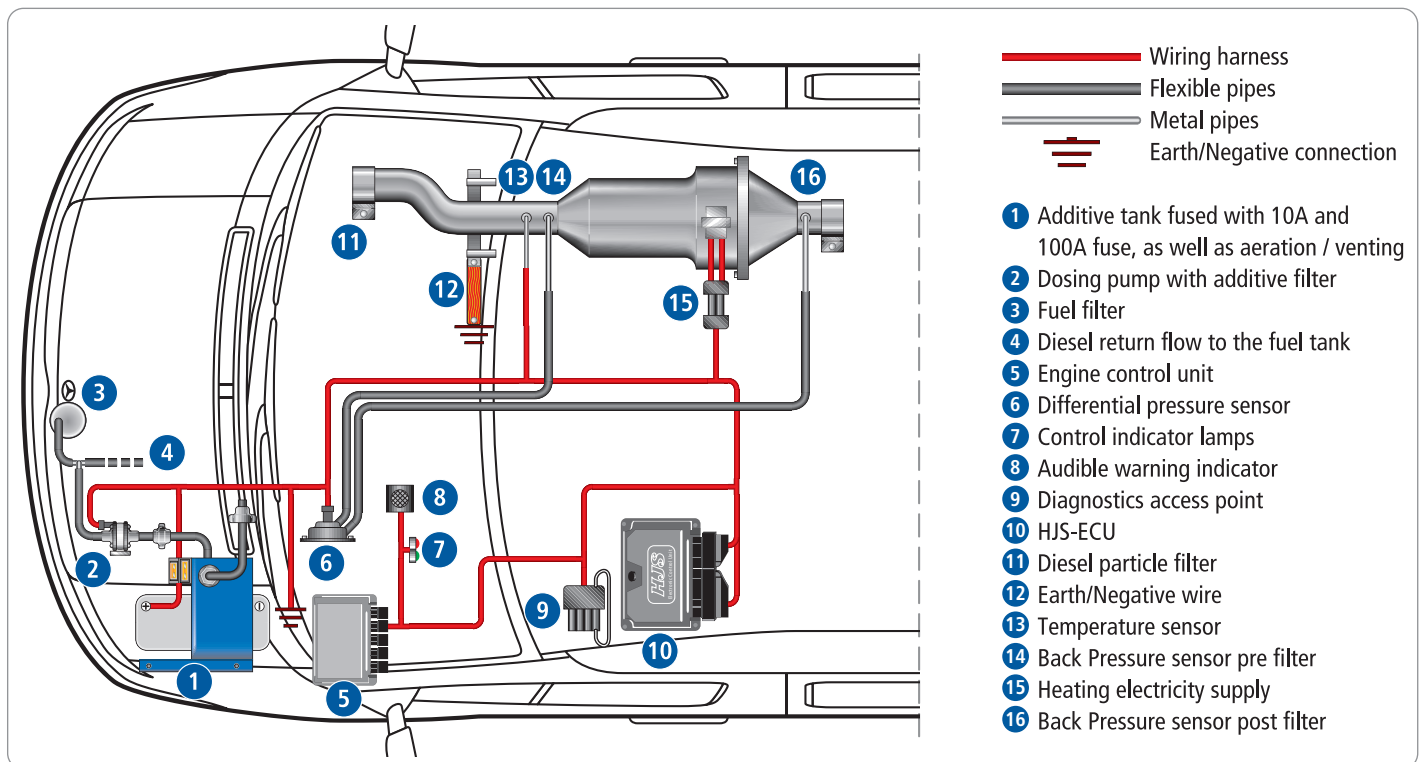
## Market coverage and product range

Many commercial vehicles can be fitted or retrofitted with the HJS SMF®-AR particulate filter system. The product range covers the bulk of Germany's fleet of these vehicles. Systems are available for various vehicle models built by FIAT, IVECO, Mercedes-Benz, Peugeot and VW and have already been in use for a number of years. The HJS SMF®-AR system has proved itself in many applications and in tough fleet operation, both as original (OE) and retrofit equipment.

The existing HJS product range is subject to ongoing review and expansion, which means that there will be constant additions of new vehicle models, especially EURO II and EURO III vehicles.

## SMF®-AR advantages at a glance

- ✓ Suitable for OE and retrofitting applications
- ✓ Over 99% reduction of soot particles, incl. fine particulate matter
- ✓ Particularly suitable for inner-city stop-and-go traffic
- ✓ Fully automatic, active regeneration
- ✓ Modular construction
- ✓ Reliable operation and low maintenance



SMF®-AR system in a Mercedes-Benz Sprinter

## Direct-Fit SMF®-AR

LEC Approval No. LE153-03

Vehicle	Year	EURO Standard	Engine	Displacement ltr.	Performance kW	System	Article-Nr.
<b>Citroën</b>							
Jumper 2.8 HDI 130	ab 2002	III	2.8 Hdi 130	2.8	94	SMF®-AR	93 32 2004
<b>Fiat</b>							
Ducato 2.3 JTD	ab 2002	III	2.3 JTD	2.3	81	SMF®-AR	93 32 2005
Ducato 2.8 JTD	ab 2002	III	2.8 JTD	2.8	94	SMF®-AR	93 32 2004
<b>IVECO</b>							
Daily III	ab 2003 - 2006	III	2.3 Ltr.	2.3	71/100	SMF®-AR	93 71 2013
Daily III	ab 2000 - 2006	III	2.8 Ltr.	2.8	92/107	SMF®-AR	93 71 2011
Daily III	ab 2004 - 2006	III	3.0 Ltr.	3.0	100/122	SMF®-AR	93 71 2011
<b>Mercedes Benz</b>							
Sprinter 211, 311, 411 CDI	2000 - 2006	III	OM 611 DE 22 LA	2.2	80	SMF®-AR	93 13 2302
Sprinter 216, 316, 416 CDI	2002 - 2006	III	OM 612 DE 27 LA	2.7	115	SMF®-AR	93 13 2303
Sprinter 216, 316, 416 CDI	2003 - 2006	III	OM 612 DE 27 LA	2.7	115	Installation kit for automatic gear box	93 02 4800
Sprinter 616 CDI	2004 - 2006	III	OM 612 DE 27 LA	2.7	115	SMF®-AR	93 13 2303
<b>Peugeot</b>							
Boxer 2.8 Hdi	ab 2002	III	2.8 HDi	2.8	94	SMF®-AR	93 32 2004
<b>VW</b>							
Bus T4	1993 - 2003	III	1.9 Ltr.	1.9	50	SMF®-AR	93 11 2007
LT 35 A	2001 - 2006	III	BBE 2.5 Ltr.	2.5	61	SMF®-AR	93 11 2018

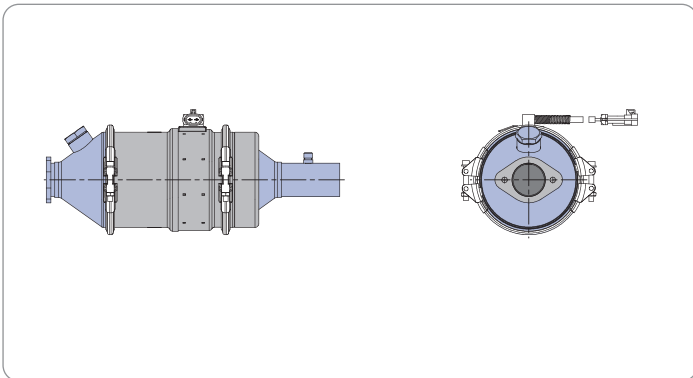
## Flex-Fit SMF®-AR

Vehicle class	EURO Code	Displacement [l]	Power [KW]	HJS System	Design	HJS Part No.	LEC Approval No.
N1	II / III	1.0 - 2.5	30 - 55	SMF-AR 18	ax-ax	93 71 3113	LE153-03
N1	II / III	1.0 - 2.5	30 - 55	SMF-AR 18	VW LT	93 11 2009	LE153-03
N1	II / III	1.0 - 2.5	30 - 55	SMF-AR 18	Sprinter	93 13 2312	LE153-03
N1 / M2	II / III	1.5 - 3.2	50 - 115	SMF-AR 27	ax-ax	93 71 3114	LE153-03
N1 / M2	II / III	1.5 - 3.2	50 - 115	SMF-AR 27	Sprinter	93 13 2311	LE153-03
N1 / M2	II / III	1.5 - 3.2	50 - 115	SMF-AR 27	Ducato	93 32 2003	LE153-03
N1 / M2	II / III	1.5 - 3.2	50 - 115	SMF-AR 27	Iveco	93 32 2009	LE153-03
N1 / N2 / M2	II / III	1.8 - 4.2	75 - 165	SMF-AR 38	ax-ax	93 71 3115	LE153-03
N1 / N2 / M2	II / III	1.8 - 5.0	85 - 180	SMF-AR 54	ax-ax	on request	LE153-03
N1 / N2 / N3 / M2 / M3	II / III	2.0 - 12.0	100 - 240	SMF-AR 81	ax-ax	on request	LE153-03

N1 – CV up to 3.5t – Conditions < 7.5t  
 N2 – CV 3.5t to 12t – high mileage > 30.000/year; 6 inch catalyst  
 N3 – CV >12t  
 M2 – Bus > 9 seats incl. driver  
 M3 – Bus > 8 t

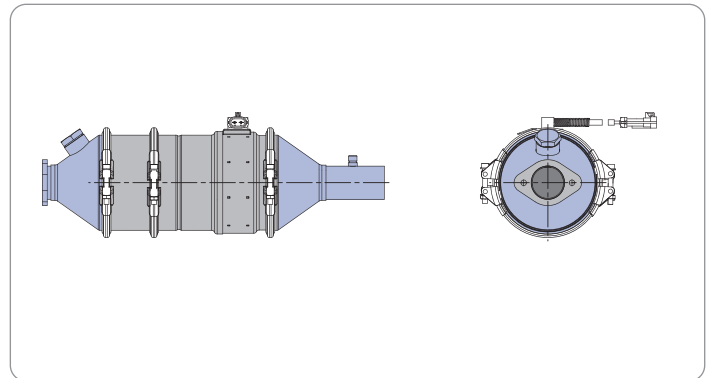
### SMF®-AR – 1.2 m<sup>2</sup>

AXIAL - AXIAL



### SMF®-AR – 1.8 m<sup>2</sup>

AXIAL - AXIAL





*Is your vehicle prepared for 2012?*

## Solutions for LEZ III & IV



**HJS**  
Transport for London  
Certified approved  
LEZ adaptations

LEZ adaptations

**Retrofit now and get free access  
to Low Emission Zones**

- ✓ easy removal
- ✓ easy to clean
- ✓ low lifetime costs

**HJS – The ONLY logical solution to LEZ III & IV**  
Visit our website: [www.hjs.com/uk](http://www.hjs.com/uk)

**HJS**  
Emission Technology

**HJS is represented in the UK by EEL – Emission Engineering Ltd and its UK distributors**  
For more information and support on the comprehensive product range for all types of vans,  
light and heavy lorries as well as public transport buses and coaches, please contact

**Mr. Gerd van Aaken**

by phone: +44 (0)1344 360 173 / +44 (0)7949 123 361 or via e-Mail: [gerd@vanaakendiesel.com](mailto:gerd@vanaakendiesel.com)



**HJS** Emission Technology GmbH & Co. KG is a medium-sized company based in Menden in central Germany and has many years of experience and expertise in the field of exhaust-gas aftertreatment. Some 500 employees are engaged in the development, production and marketing of modular systems for reducing pollutant emissions. These innovative environmental protection technologies can be used either as original equipment or for retrofitting in passenger cars, commercial vehicles as well as a wide range of non-road mobile machinery and stationary applications.

In addition to systems for spark-ignition engines, HJS today focuses on solutions for diesel engines – especially for reducing the emissions of soot particles (PM) and nitrogen oxides (NO<sub>x</sub>). With extensive patents for DPF® (diesel particulate filter) and SCRT® (Selective Catalytic Reduction Technology) systems, HJS sets benchmarks.



### **HJS** technology portfolio for OE and retrofitting

- > Diesel Particulate Filters (DPF®)  
Reduction of soot-particle emissions (PM)
- > SCR-Systems  
Reduction of nitrogen-oxide (NO<sub>x</sub>) emissions
- > SCRT®-Systems  
Simultaneous reduction of soot-particle (PM) and nitrogen-oxide (NO<sub>x</sub>) emissions
- > Thermal Management  
For DPF®-regeneration and SCR-functionality
- > Electronic Control Units and Software  
Monitoring and controlling of all system functions

*A clean future with HJS!*