



## Upgrade to Euro 6/VI standard with active thermal management



**SCRT® TM for**

light and medium-weight commercial vehicles,  
buses and municipal vehicles

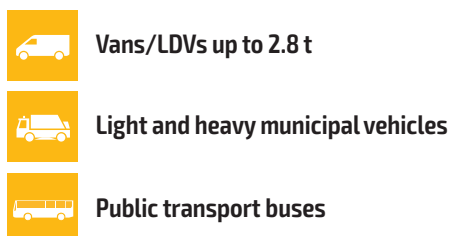
# Clean Diesels for Clean City Centres

## Uncompromisingly clean diesels – the key to clean inner cities

- Local authorities across Europe are battling against the continuing poor air quality prevalent in many city centres. The goal is to significantly reduce air pollution in the shortest possible time without restricting mobility or logistics.
- Retrofitting diesel-powered commercial vehicles with the best possible emissions-reduction systems is a quick, effective and economically viable alternative to drastic driving bans.
- Programmes to promote the upgrading of commercial vehicles with state-of-the-art emissions systems have been extended both in Germany and the UK. After kicking off with public transport buses, the two governments have expanded their programmes to cover municipal vehicles and light commercial vehicles, and they have also raised the level of subsidies on offer.



- ✓ Subsidy programmes for all commercial vehicle classes
  - ✓ Up to 95% of the costs for vehicle owners are borne by the federal and state governments (Germany)
  - ✓ Entry into driving ban zones in line with the Federal Pollution Control Act (Bundesimissionsschutzgesetz)
- HJS has developed Euro 6/VI emissions technology that covers the entire spectrum of commercial vehicles: from vans and municipal vehicles to buses, certified according to the technical guidelines of the Federal Motor Transport Authority CVRAS.



## Playing our part by cutting pollutant levels as much as possible, not merely as much as legally required

- State-of-the-art Euro 6/VI diesel vehicles offer maximum exhaust gas purification through the combined use of particulate filters and SCR technology. That said, especially in inner-city traffic, vehicles often fail to reach the temperature levels required for the SCR catalytic converter to function optimally. This is further exacerbated in winter by the low ambient temperatures. The only way vehicle manufacturers are able to meet the high requirements of the Euro 6/VI emission standard under all operating conditions is by integrating thermal management for the engine.
- HJS has adapted this approach with its SCRT® TM architecture designed specifically for retrofitting. SCRT® TM enables existing Euro V/EEV vehicles (which have no in-engine thermal management) to operate with the same emissions levels as today's Euro VI buses and reduces emissions even in inner-city operation by up to 95% – that's 10% more than is required by the CVRAS to obtain type approval.

# HJS Emissions Systems with Active Thermal Management

## OEM technology for retrofitting – VDA-certified

- When it comes to its retrofit products for commercial vehicles, HJS puts its trust in the SCRT® system architecture – which has been tried and tested millions of times over – and adds active thermal management. This architecture significantly improves the efficiency of the emissions-reduction system, especially when engines are operating at low loads in inner-city traffic. The system operates independently of the engine management system and without any secondary lines or bypasses in the exhaust system.
- As a certified original equipment supplier to the automotive industry, HJS guarantees functional and manufacturing quality in line with the established quality and environmental standards ISO 9001:2015 with STVR (KBA), ISO 14001:2015 and VDA 6.1, 5th Edition, 2016.



**VDA 6.1**

## How SCRT® TM with active thermal management works

- Active thermal management uses networked actuators to ensure that the SCR catalytic converter always achieves maximum possible NOx reduction – without affecting the engine. In addition, particulate filter regeneration is ensured by active thermal management even in the coldest of operating conditions. "The demanding subsidy rules in place in Germany are one aspect necessitating the use of active thermal management, but our aspirations go beyond mere compliance with the rules – we want to offer the best, technically feasible NOx reduction performance and guarantee this sustainably and permanently in everyday operation," says Jan Ebbing, Head of Sales at HJS.

## Operating costs

- In operation, the systems are comparable to the OEM solutions of state-of-the-art Euro 6/VI commercial vehicles. Depending on the type of vehicle, the amount of AdBlue® added can be expected to be around 3% to 5% of the vehicle's diesel consumption, while the increase in fuel consumption is less than 6%.



Extra fuel consumption < 6%



AdBlue® consumption between 3% and 5%

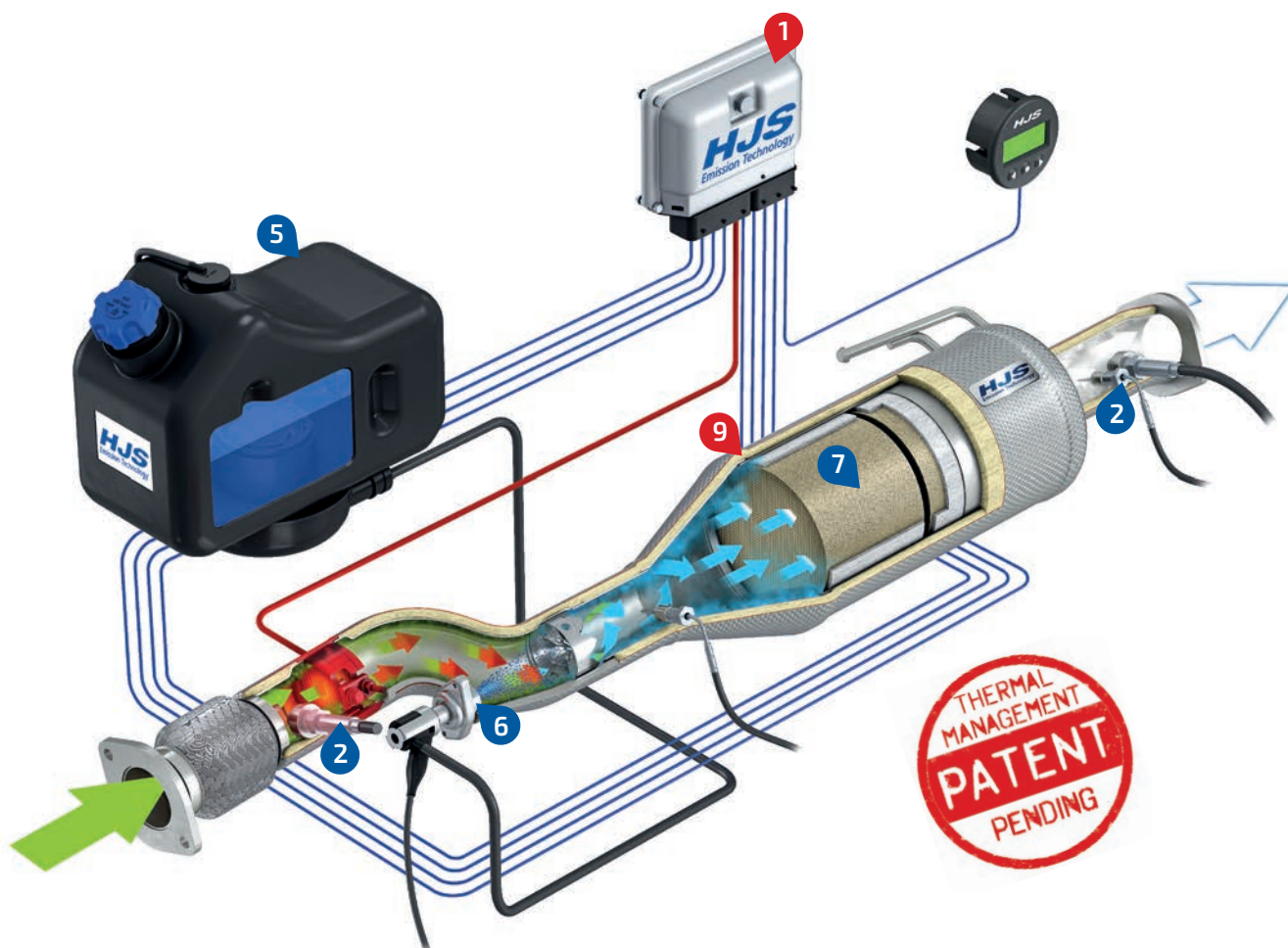
## Customer benefits from HJS emissions systems with active thermal management

- ✓ Technology comparable to Euro 6/VI standard with active thermal management. Earlier and continuous injection with HJS SCRT® TM enables higher NOx conversion rates compared with a conventional SCRT® system and prevents urea from crystallising.
- ✓ No changes to the engine management system (neither mechanical nor electronic)
- ✓ No permanent load on the on-board supply system
- ✓ No harmful substances carried by exhaust gases
- ✓ Developed, certified and manufactured in accordance with original equipment standards

# HJS Emissions Systems with Active Thermal Management



System for vans & light commercial vehicles



## Active thermal management

### 1 Fully independent system electronics



The fully independent system electronics control and monitor all electronic components of the emissions treatment system. They ensure that the eDoc and eShutter are activated as required and that the optimum AdBlue® dosing volume is provided, and they also carry out diagnosis of all system components. The system status and any errors that occur are shown on a display.

### 2 Sensors



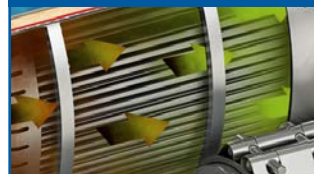
An extensive range of sensors controls and monitors the entire system: pressure, temperature and nitrogen oxide (NOx) sensors supply the control unit with all the necessary parameters for autonomous operation.

### 3 eCat (DOC)



In parallel with the reduction of carbon monoxide (CO), hydrocarbons (HC) and carbon dioxide (CO<sub>2</sub>) emissions, the electrically heated diesel oxidation catalyst (DOC) is also an important element of the active thermal management system. The electronic temperature control function regulates the temperature to a stable level above the temperature level that is so important for SCR. Important additional functions: The continuous oxidation of particulate matter (PM) in the diesel particulate filter is ensured by the deliberate and controlled formation of nitrogen dioxide (NO<sub>2</sub>) by the DOC.

### 4 Diesel particulate filter



The gaseous components can flow through the DPF®. The particulate matter (which essentially comprises soot particles) on the other hand is trapped inside the filter, where the NO<sub>2</sub> continuously oxidizes the soot – "soot-free" exhaust gases leave the DPF.

### 5 AdBlue

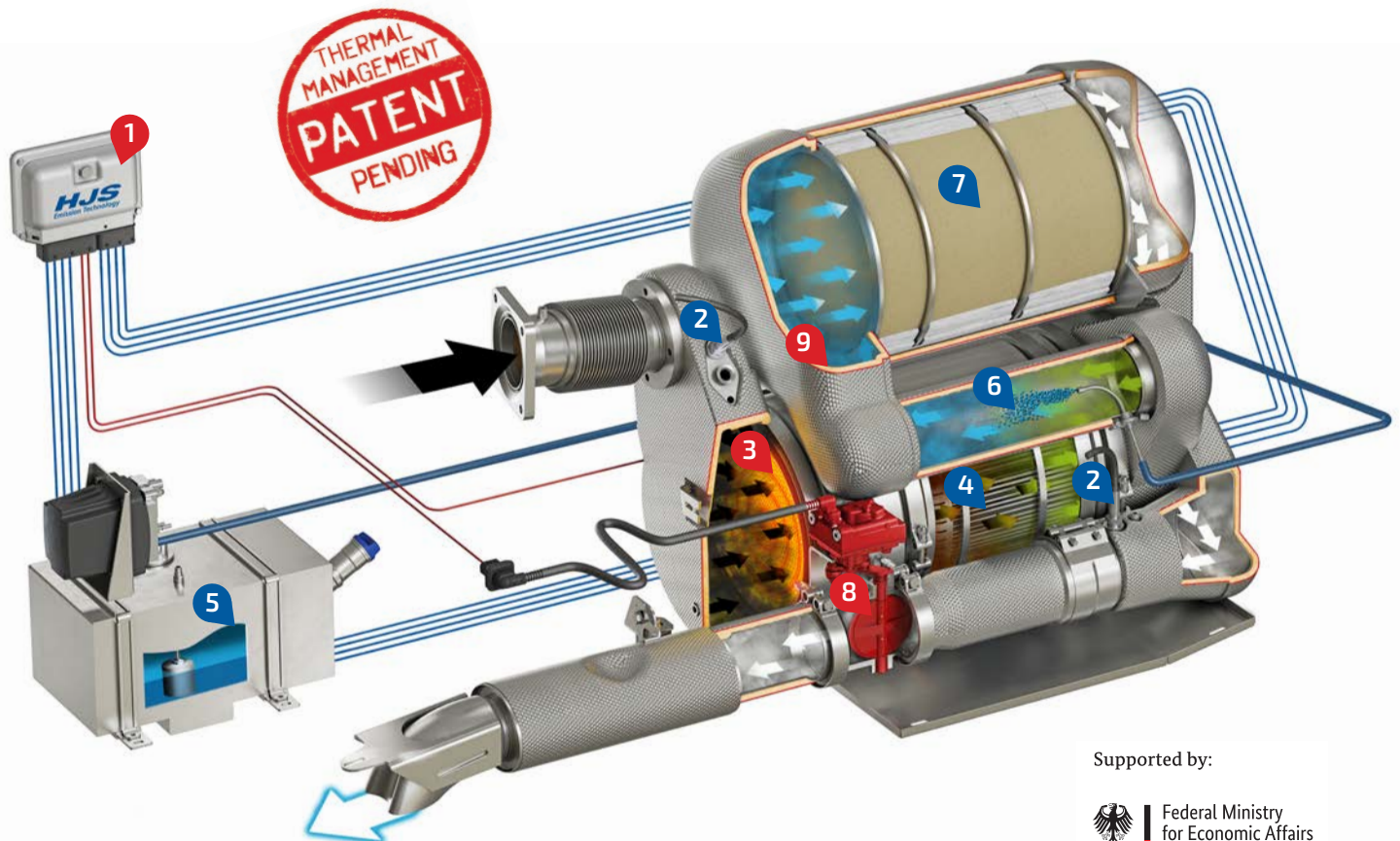


The AdBlue® tank holds the reagent that is required for the SCR process (see ⑥ and ⑦).





## System for heavy commercial vehicles (municipal & public transport vehicles)



Supported by:



Federal Ministry  
for Economic Affairs  
and Energy

on the basis of a decision  
by the German Bundestag

AdBlue®-tank



...ds the reduction  
...d for the SCR reac-  
...

⑥ AdBlue® injector  
and mixing section



The reduction agent in the AdBlue® tank ⑤ is injected into the exhaust system according to the NO<sub>x</sub> concentration measured by the system electronics. It is then converted to ammonia in the mixing section that follows.

⑦ Nitrogen oxide  
catalysts (SCR)



Ammonia is required to reduce the level of nitrogen oxides (NO<sub>x</sub>). The exhaust gas mixture that arises in the mixing section ⑥, and is comprised of ammonia and nitrogen oxides, is converted in the SCR catalytic converter into the harmless substances nitrogen (N<sub>2</sub>) and water (H<sub>2</sub>O).

⑧ eFlow controller



The exhaust gas temperature is raised by means of the eFlow controller. For this purpose, the exhaust backpressure is adjusted to a constant value. Within a fraction of a second, the control angle of the eFlow controller is adjusted as a function the exhaust mass flow and exhaust-gas temperature. At high temperatures and high mass flows, the eFlow controller is fully open.

⑨ Integral insulation



Highly efficient integral insulation is used to support the temperature management of catalysts and filters and to help increase the efficiency of the system. It is an insulation system that comprises an insulation mat and a stainless-steel foil with an embossed surface structure to provide protection and lagging. By using embossing tools, the insulation can be adapted perfectly to the contour of the item to be insulated.

# Product Range



## SCRT® TM for vans & light commercial vehicles

Subsidy of up to 95% of system and installation costs (80% federal govt, 15% state) (Germany)



Vehicle type	Vehicle classes	Weight	Emissions standard	Emiss. code	Engine power
Vans & light commercial vehicles	M1, M2, N1, N2	2,8 - 7,5 t	Euro 5	35**	< 123,6 kW
	M1, M2, N1, N2	- 7,5 t	Euro V /EEV	0683, 0684 0690, 0691	Type approval in preparation



## SCRT® TM for heavy commercial vehicles (municipal vehicles)

Subsidy of up to 80% of system and installation costs (Germany)



Vehicle type	Vehicle classes	Weight	Emissions standard	Emiss. code	Engine power
Heavy municipal vehicles	M1, M2, N2, N3	> 3,5 t	Euro V /EEV	0683, 0684 0690, 0691	168 - 252 kW



## SCRT® TM for public transport buses

Subsidy of up to 95% of system and installation costs (80% federal govt, 15% state) (Germany)



Vehicle type	Vehicle classes	Weight	Emissions standard	Emiss. code	Engine power
Public transport buses	M3	> 5 t	Euro V /EEV Euro IV /EEV	0683, 0684 0690, 0691	165 - 318 kW

## Product variants \*1

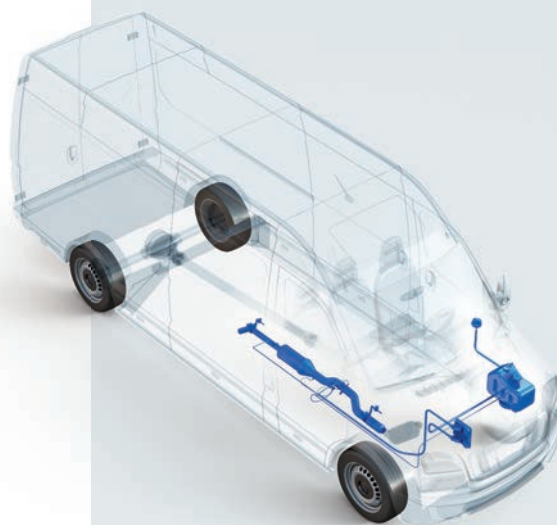
Manufacturer	Vehicle	HJS item no.
Land Rover	Defender* <sup>2</sup>	94 72 0394
Renault	Master UK LM35 dci	94 72 0391
Renault	Master UK Energy dci 135	94 72 0393

Mercedes Benz	Sprinter panel van, > 3,5t	on request
Mercedes Benz	Sprinter panel van, < 3,5t	on request
Mercedes Benz	Vito	on request
Mercedes Benz	Vario	on request
Volkswagen	T5 van	on request
Volkswagen	Crafter pickup	on request
Volkswagen	Crafter panel van	on request
Fiat	Ducato panel van	on request
Ford	Transit panel van	on request
Renault	Master panel van	on request
Land Rover	Defender	on request

### Cabs\*3

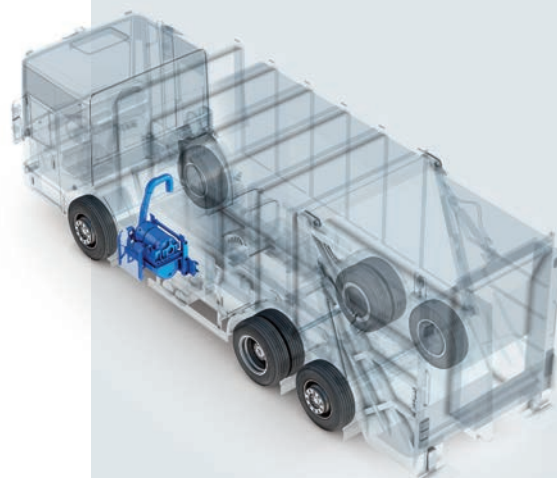
LTI	TX4	94 72 0392
Mercedes Benz	Vito Cab	94 72 0396

\*<sup>2</sup> Wheel base 90 mm. \*<sup>3</sup> Including teleservice module



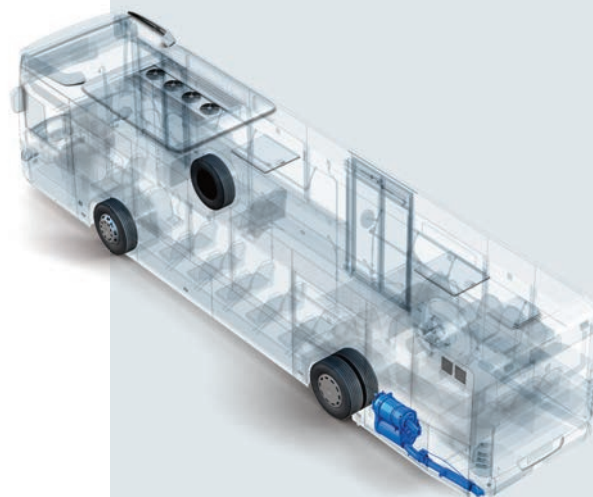
## Product variants \*1

Mercedes Benz	Econic	
Mercedes Benz	Axor	
MAN	TGS	on request
MAN	TGA	on request



## Product variants \*1

Evobus	Citaro
Solaris	Urbino
MAN	Lion's City
Neoplan	Centroliner
Setra	S412
Setra	S415
Setra	S416
Setra	S417
Setra	S419
VDL	



\*<sup>1</sup> HJS is continuously expanding its product portfolio.  
Details and other vehicles on request.



## Installation & Supply Sources



- Details regarding costs, installation and training possibilities on request
- In principle, systems can be installed by any vehicle workshop with emissions testing certification
- Companies interested can contact HJS directly

### HJS offers custom solutions for operators of larger fleets:

- >> Installation by HJS partners or workshops possible
- >> Training and certification of installation personnel by HJS
- >> Flexible installation capacities by using HJS partners (24/7 option)
- >> Product and training documentation according to IEC/IEEE 82079-1

### Please address your enquiries to:

- >> HJS Sales Emission Upgrades
- >> Telefon: +49 2373 987-225
- >> E-Mail: emission.upgrades@hjs.com

## Maintenance & Customer Service

### Comprehensive service network

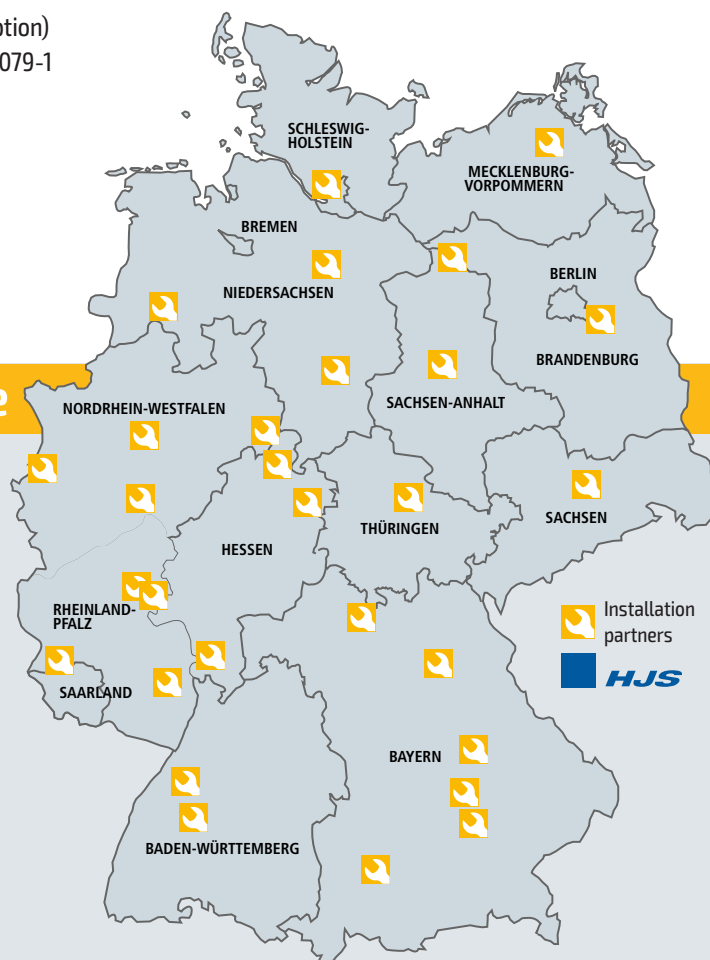
- >> Local customer service
- >> Expert contacts & technical hotline
- >> Rapid availability of spare parts

### Customer-specific maintenance concepts

- >> Maintenance services
- >> Extended warranty

### Remote maintenance of the entire system (SCR and DPF®)

- >> Tailored maintenance services
- >> Reduced downtimes



### Sales HJS UK

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