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# User Manual MC-System





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## *PREFACE*

Dear customer,

Diesel exhaust particulate filters made by HUSS have been especially developed to enable the operation of diesel exhaust particulate filters even independently on current.

The exhaust gas of diesel engines contains harmful particles which are invisible to human eyes.

Diesel particulate filters made by HUSS filter such particles up to 99.9% (relating to the particle mass) and contribute therefore to the protection of your health and the environment.

Warranty can only be granted, if the filter was mounted and finally accepted by HUSS or an authorised partner and if the instructions prescribed in this manual are observed.

**Please read these instructions before installing or putting into operation your diesel exhaust particulate filter. We or the appointed dealer nearest to you (see reverse) will be at your disposal for assistance in any question you might have.**

Yours,  
HUSS Umwelttechnik GmbH.



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## GENERAL INFORMATION

### Important!

This note gives recommendations for application and helpful hints as to the installation and the operation of diesel exhaust particulate filters.

### Important general references:

- This manual as well as its technical description is to be read carefully before the use of the diesel particulate filter.
- The official regulations specified in this documentation, as well as the installation and manuals prescribed by the vehicle manufacturer must be kept.
- This manual as well as its technical description are meant to be general and should only be transferred to a specific installation in a general manner.
- The diesel particulate filter is exclusively intended for the purpose indicated by the manufacturer. When used beyond its intended use, the manufacturer is not responsible for any resulting damage.
- Always refer to the general rules for the prevention of accidents as well as the other generally recognized safety rules according to industry practice.

### Important safety tips:



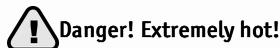
#### Attention!

The proper and safe operation of the diesel particle filter requires appropriate handling, storage, mounting and assembly, and careful operation and maintenance.

### Installation:

The installation of the diesel particle filter can only be performed by persons who are informed about the entire filter system and are familiar with dangers that may arise. Work on the diesel particle filter during the engine operation is forbidden.

Do not place flammable materials near the filter at any time.



#### Danger! Extremely hot!

Hot exhaust gases can be expelled from the exhaust pipe during the regeneration process and during the engine operation.



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## PRODUCT INFORMATION

### Description

The diesel particulate filter with stainless steel housing cleans the diesel exhaust gases of nearly all particulate matter and impurities of the exhaust gas.

Thus with the employment of a diesel particulate filter, one maintains low-pollution workshops and job sites and clean running equipment.

At the same time the highest requirements from regulatory agencies for the protection of the environment are fulfilled.

### Designated purpose – intended use

The HUSS diesel particulate filter is intended only for the exhaust filtering of equipment with diesel engines.

### Area of application - standards

The applicable area for the diesel particulate filter is the subsequent treatment of diesel engine exhaust gases.

The HUSS diesel particulate filter fulfills the requirements of the TRGS 554 (Technical rules for hazardous substances)

Those technical rules are for working sites where diesel exhaust emissions in the air at the workstation are possible.

### System elements

Aside from the modular developed diesel particulate filter, integrated with the exhaust stream, the filter system contains a mechanical pressure manometer. An electrical pressure manometer including a data logging function is optional.



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## *FUNCTION DESCRIPTION*

During the engine operation the diesel engine, exhaust gases flow by the SiC filter, which almost completely captures all harmful soot particles.

As the running time of the diesel engine increases, the degree of fullness of the diesel particulate filter and thus the exhaust back pressure rise.

Because of the catalytic coating of the filter, the collected particles get oxidized by reaching a certain exhaust gas temperature.

The fill level control is realized by the manometer. If the back pressure reaches a certain level, the engine needs to be operated at higher force to reach higher exhaust gas temperatures to be able to regenerate the filter. The optional electronic control uses LED to warn in case of a possible overloading of the filter.

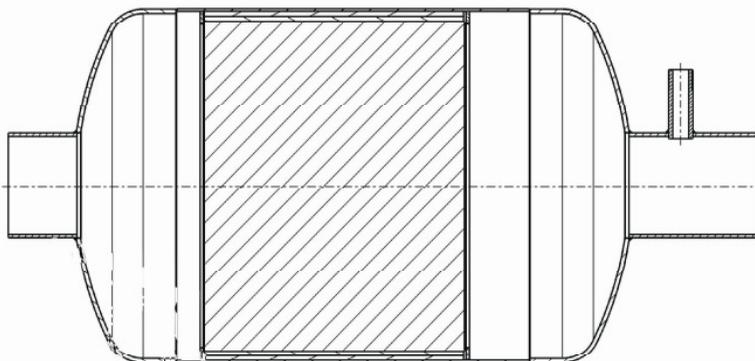
### **Error:**

If there is no decline of the back pressure level, despite operating at high exhaust gas temperatures, an error in the system occurred. A professionally trained technician is required in that case.



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**Sectional Diagram:**



**TECHNICAL DATA**

Fuel	Diesel DIN EN 590, DIN 51628
Engine lubricants	Manufacturer dependent, white-ash-free or low-white-ash producing engine lubricants
Operation Voltage (when use of data logger)	12V or 24V
Filter Material	LPS-SiC
Way of Filtering	Wall-Flow Filter
Particulate Capturing Efficiency (In reference to the particulate mass)	> 99.9% (Elemental Carbon)
Ambient Temperature	-20°C to +50°C (-4°F to +122°F)
Enclosure	IP 65 DIN 4050000
Exhaust backpressure	Up to 500 mbar
Insulation Insert	approx. 20dB(A), engine dependent



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## MAINTENANCE

### Maintenance for the diesel particulate filter

For performance of the maintenance work, a HUSS service technician and/or qualified technician is to be notified.

Not performing maintenance service leads to a shortening of the life span of the filter and loss of warranty coverage.

The (optional) Data Logger also records this indication which can be reviewed later.

### Maintenance of Equipment

In order to ensure the proper function of the filter, it must be guaranteed that the diesel engine functions error free and is operated and maintained according to the operating instructions of the engine manufacturer.

Small deviations from the intended operation of the engine can cause an increase in the soot particle emission (higher soot number) and thus lead to a reduction in the filter endurance.

**After 1500 operation hours, or at least annually, the diesel engine emissions are to be examined in accordance with TRGS 554.**



### Important!

The use of fuels with additional additives can affect the particulates in the exhaust gas and negatively affect the diesel particulate filter. This can possibly increase maintenance service. Before adding fuel additives you must first consult with HUSS:

### When blue exhaust gas is noticed after the filter

Blue exhaust gas noticed after the filter is a clear indication that "Blow by" is occurring inside the diesel engine, i.e. the engine exhaust gases contain unburned lubricating oil, which is partly captured in the diesel particulate filter and partly escapes.

In this case, the engine should be serviced immediately in order to prevent damage of the diesel particle filter. Also, too much oil (or fuel remainders) captured by the diesel particulate filter can cause relatively high temperatures during regeneration, which can lead to severe damage of the ceramic filter.



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### **Grey and/or brownish exhaust gas noticed after the filter**

Grey and/or brownish exhaust gas noticed after the filter means that unburned hydrocarbons and/or sulphides are present in the exhaust stream.

The fuel injection system of the engine needs to be analyzed.

#### **Recommendations:**

- Use engine lubricants that have a low white ash formation when burned.
- The quality of the engine lubricants is of relevant importance for the life span and the lasting performance of the filter in the field. Consider using high quality lubricants.
- Ask your dealer, the manufacturer, or the maintenance and service station for white-ash-free or low-white-ash producing engine lubricants.



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## WARRANTY STATEMENT

### Warranty Statement (As of: 05/2009):

The aim of this warranty statement is to explain in detail and in addition to the „general terms and conditions“ under which conditions of warranty of HUSS is valid. The main focus is, to avoid problems in the communication before they arise. All documents mentioned in the text below are available at the application engineering development of our company.

#### (1) General:

HUSS grants a warranty period of 12 month starting with the delivery date to the customer. Place of warranty is the place of the company.

#### (2) Usage of original HUSS parts:

For installation, maintenance work or reparation it is only allowed to use parts or components being included in the in the original scope of delivery or being included in the original spare part list.

#### (3) Modification of HUSS parts/components:

Modification of parts or components needs to be released by HUSS in a written form. This is also valid for modification regarding the exhaust piping e.g. the exhaust inlet or outlet.

#### (4) Installation in accordance to the technical instruction manual:

The installation has to be done absolutely according to the technical instruction manual. In case of doubt the specialists of HUSS have to be consulted.

#### (5) Parameter settings Control Unit:

It is not allowed to change the parameter settings in the control unit on one's own authority. This requires a special training / software and the proper instructions from HUSS. Changes require documentation according to the training. If in doubt, contact the specialists from HUSS. No warranty will be given in case of neglecting this statement.

- \* MK-System - HUSS Control
- \* MD-System - ECU (Electronic Control Unit)
- \* MA-System - ACS (Additive Control System)
- \* ME-System - ZA3

#### (6) Dimensioning of the filter:

For the dimensioning of the filter the engine power is only an approximated value. In case of doubt the specialists from HUSS have to be consulted.

#### (7) Installation log / Checklist:

From each installation project an installation log according to the checklist has to be made. This form sheet has to be filled in completely and sent back to HUSS.



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**(8) Briefing of the customer / Disposal log:**

After the installation is done, the customer / end-user has to be trained with the correct usage of the product. After the training, the customer / end-user needs to confirm, by signing the disposal log, that he has been trained and that the product had a proper function. This form sheet has to be filled in completely and sent back to HUSS.

**(9) Period of maintenance and service:**

The periods of maintenance and service need to be complied during the period of warranty. The services during the period of warranty have to be done by HUSS or by an authorized service partner. The form sheet about the services has to be filled in completely and sent to HUSS. The compliance with the periods of service and maintenance does not only refer to the filter but also for the machine itself.

**(10) Product identification card / Delivery Report:**

In case that filter system will be completed out with components, or components will be changed, the serial numbers of all components need to be registered in the product identification card. This card needs to be sent back to HUSS.

**(11) General issues in case of reclamation:**

If in case of reclamation parts of components are changed, they become the property of HUSS. It is up to HUSS to decide, whether new parts or overhauled parts will be used.

The period of warranty for changed parts or components ends with the end of the period of warranty of the entire system. No warranty will be given in case of an accident, damages done by purpose, services by unauthorized personnel, or damages caused by inappropriate usage. There is no entitlement of system upgrade in case of changes in design or further on developments of the products.

**(12) Consumable parts:**

For consumables or waste arts e.g. wires, wire-connections or gaskets, no warranty claim can be accepted.

**(13) Reclamation report / return consignments of parts / components:**

If parts / consignments were reconsigned to HUSS a complete reclamation report has to be transmitted, too. A reclamation case has to be announced towards HUSS in a 30 days working period.

**(14) Professional dismantling of parts / components:**

If parts of entire systems are disassembled, the warranty can only be given, if the disassembling is done in a professionally way.

**(15) Service in the scope of warranty:**

Service work in the scope of warranty can only be accepted, if this work was known to and authorized by HUSS.



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**(16) Refund of costs in the scope of warranty:**

Labour costs in case of a warranty can only be refund, if the service is allowed by HUSS or if a specific service contract is in place. In all other cases the maximum refund is limited to material costs without any additional costs.

**(17) Usage of fuel according to DIN EN 590, DIN 51628:**

The fuel of the engine has to be according to the DIN EN 590, DIN 51628 regulations.

**(18) Maximum soot emission:**

In order to safeguard the function of the filter the engine is allowed to emit exhaust with a maximum soot number of 2.0 according to Bosch.



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**NOTES:**



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Sales and service  
North America



*HUSS Umwelttechnik GmbH*

Retrofit sales for Europe  
and other export markets  
After sales service

*HUSS Technologies GmbH*

Sales firstfit  
System integration



*HUSS Umwelttechnik AG*

Sales and service for  
Switzerland, France  
and Italy



*CleanDiseelCeramics GmbH*

Development and  
production of LPS-SiC  
diesel particulate  
filters



*Metpela Oy*

Development and  
production of mufflers  
and pipings; Canning  
technique

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