Unikat Actifilter DB is a new particulate filter system (DPF) from Engine Control Systems which efficiently removes particulate (PM) from diesel exhaust gas and also functions as a silencer.

The collected soot (PM) is burnt off using an integrated diesel burner while the vehicle is at idle in only 20 minutes.

The regeneration process is carefully controlled and all required components are contained on the vehicle.

Shortest regeneration time available on the market

Functions independent of diesel exhaust temperature and operation

Functions independent of diesel fuel sulphur level

Uncomplicated system adapted for retrofit

Does not increase NO2
The system consists of:
- A particulate filter mounted horizontally in the exhaust system in place of the original silencer. The choice of the inlet and outlet section depends on the installation on the vehicle.
- A control unit which supplies the diesel burner with diesel fuel, air and control signals. The control unit is installed on the vehicle on a protected but accessible place close to the particulate filter and is connected to the engine's fuel return line and to 24 VDC (the engine's battery).
- A display unit that is mounted in the vehicle's cabin visible to the driver. The display unit indicates the status of the system, any alarms, and if required it can show exhaust back pressure, exhaust temperature, and operation time elapsed since last regeneration.
- Cables, hoses and accessories for connection between the components of the system and to the vehicle's battery. The connection to the engine's fuel return line is not included and components and layout must be determined by the installer.

Options:
- An adapter 12 VDC - 24 VDC for connection to 12 V electrical system
- A diesel oxidation catalyst for the reduction of gaseous pollutants.
- Brackets for mounting.

Unikat Actifilter DB is an integrated diesel particulate filter and silencer, which typically removes >96% of diesel particulate (PM) from engine exhaust. The filtered particulates (soot) are stored in the filter. At a preset backpressure or a preset operation time, normally 8-10 hours, a dash mounted display indicates to the driver that it is time to perform the regeneration. The vehicle is then driven to a suitable place for regeneration, the engine is left to idle and regeneration is initiated by pressing a button on the display unit. Regeneration is done with an integrated diesel burner which uses fuel from the return line and takes 20 minutes depending on filter size and amount of collected soot.

There are no duty cycles or exhaust temperature requirements for this system and fuel consumption is very low due to the short time of regeneration.

The particulate filter, same as used in the Unikat Combifilter, is based on silicon carbide (SiC) which offers superior thermal durability and extended service life and can be combined with a separate oxidation catalyst for the reduction of the gaseous pollutants carbon monoxide (CO) and hydrocarbons (HC).
To obtain the proper filter size, the engine make and maximum allowed backpressure must be known. The chart below shows the recommended engine intake air flow for each filter size. If you do not have the actual OEM intake air flow, use the general equation below to determine the approximate value. Please contact Engine Control Systems or your local distributor for further sizing information or assistance.

Engine intake air flow (m³/h) = Engine displacement (liters) x max. RPM of engine x VE x 60

Engine cycle = 2 for 2-stroke engines and 4 for 4-stroke engines
VE = 0.85 for normally aspirated engines, 1.7 for turbocharged, 2.0 for turbocharged and aftercooled

<table>
<thead>
<tr>
<th>Model</th>
<th>DB 5</th>
<th>DB 9</th>
<th>DB 13</th>
<th>DB 18</th>
<th>DB 24</th>
<th>DB 35</th>
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<tbody>
<tr>
<td>Intake air flow m³/h</td>
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* Max ø
Dimensions are approximate.

The filter is always installed horizontally and can be supplied with brackets on request. The counterflange of the filter can be supplied in different dimensions for welding into the vehicle's exhaust pipe.

The particulate filter housing is manufactured of stainless steel and consists of an inlet section, a filter section and an outlet section. The parts are kept together with clamps which allow easy dismantling for inspection and service.

The control unit is manufactured of steel and installed on the engine close to the filter. The display unit is manufactured of steel and installed in the driver's cabin.

The choice of inlet and outlet sections depends on the installation on the vehicle. All inlet and outlet sections are supplied with a mounting plate which can be supplied with brackets for mounting.

### Inlet sections
- **Type B 2** Inlet section with diesel burner and radial inlet

### Outlet sections
- **Type T 2** Outlet section with flange and axial outlet
- **Type T 7** Outlet section with flange and radial outlet
The particulate filter effectively removes particulate (soot, PM) from diesel exhaust and is also a silencer.

Typical reductions are as follows:
- Particulate (soot), PM, 96 %
- Silencing > 15 dB

If the particulate filter is optionally supplied with an AZ catalyst, gaseous pollutants are typically removed as follows:
- Carbon monoxide (CO) 99 %
- Hydrocarbons (HC) 96 %

The particulate filter is tested by independent testing institutes and is approved for use in environmental zones and conforms to the German standard TRGS 554.

**WARRANTY**

Engine Control Systems' products are warranted for workmanship and defects of material for a period of 12 months or maximum 2000 operation hours. The obligation of this warranty is limited to the replacement of the product.

The provisions of this warranty do not apply to the product incorrectly chosen, or installed or operated, nor to any product that has been subjected to damage or negligence. Engine Control Systems shall not be liable for any incidental or consequential damages or for breach of any express or implied warranty.

For further service or for information on our other products, please contact Engine Control Systems or our distributors.

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