

Dieselpartikelfiltersystem DPF | HELLA

Generelt For at dieselbiler kan overholde de gældende emissionsgrænseværdier udstyres de med et dieselpartikelfilter, også kaldet DPF. Dieselpartikelfiltret består af en celleformet keramikstruktur, der er overfladebelagt med ædelmetaller. For tiden benyttes der overvejende to DPF-systemer. Med additiv og uden additiv. Systemet med additiv benyttes fortrinsvis af Peugeot, Citroën samt i bestemte modelvarianter af Ford, Mazda, Volvo, BMW. Ved denne metodes tilsættes der en bestemt mængde additiv til dieselbrændstoffet. Herved nedsættes forbrændingstemperaturen for soden til 450 °C. Systemet uden additiv foretrækkes især af tyske dieselmotor-producenter. I denne metode opnås den temperatur, der kræves til regenereringen, ved at forskyde indsprøjtningstidspunktet og tilføre af ekstra brændstof. Funktion DPF-systemet filtrerer skadelige sodpartikler fra motorens udstødningsgas. Når der indtræffer bestemte kørselsbetingelser, startes regenereringsprocessen automatisk. Her regenereres filtret ved at forbrænde de tilbageholdte sodpartikler ved høj temperatur. Regenerering DPF-systemet har en indbygget regenereringsfunktion. Her skelnes der mellem to forskellige processer (aktiv og passiv regenerering). Ved aktiv regenerering registreres filtrets fyldningsgrad via sensorer. Når bestemte værdier overskrides, indleder motorstyreenheden regenereringsprocessen. Styreenheden korrigerer indsprøjtningen og tilfører en defineret mængde additiv til brændstoffet fra en separat tank (hvilket sænker sodens forbrændingstemperatur). Det sker i reglen ved motorvejskørsel for hver 400 – 800 km. Ved passiv regenerering registreres filtrets fyldningsgrad via sensorer lige som ved aktiv regenerering. Motorstyreenheden korrigerer indsprøjtningen for at indlede regenereringsprocessen. I kraft af filtrets placering (tæt ved motoren) opnås den udstødningsstemperatur, der kræves til regenereringsprocessen (uden at der kræves additiv). Det sker i reglen også ved motorvejskørsel for hver 400 – 800 km. Pas på: Hvis regenereringsprocessen afbrydes, kan det medføre alvorlige skader på motoren. Alt efter bilmodel kan der lyse en kontrollampe under regenereringen. I så fald skal kørslen fortsættes, indtil kontrollampen slukker. Hvis kontrollampen stadig lyser eller blinker, kan filtret ikke regenereres. I så fald skal man omgående kontakte et

værksted (for at undgå alvorlige skader på motoren). Den aske, der dannes ved forbrænding af sodpartiklerne, forbliver i filtret. Når filtret er mættet med aske, skal det renses eller evt. udskiftes.

In order to maintain the prescribed emission limit values, a diesel particulate filter that is also known as DPF is used in vehicles with diesel engines.

The diesel particulate filter comprises a ceramic structure that has a honeycomb structure where the surface technology has been coated with precious metals.

Currently two DPF systems are mainly used.

With additive and without additive.

- The system with additive is predominantly used by Peugeot, Citroen as well as in several model versions in Ford, Mazda, Volvo and BMW. For this method, a defined amount of additive is added to the diesel fuel. This reduces the soot burning temperature to 450°C.
- The system without additive is predominantly preferred by German diesel engine manufacturers. With this method, the temperature required for the regeneration process is achieved by shifting the injection time and an additional feed of the diesel fuel.



Function

The DPF system filters harmful soot particles from the engine exhaust gases.

Once certain driving conditions are reached, the regeneration process is started automatically. In doing so, the filter is regenerated by burning the soot particles retained at high temperature.

The regeneration

The DPF system is equipped with a regeneration system.

Here one can differentiate between two different

processes (active and passive regeneration).

- During the active regeneration, the filter fill level is determined by the sensors. If certain thresholds are exceeded, the engine control unit initiates the regeneration process. The control unit corrects the injection management and mixes a defined amount of additive to the fuel from a separate tank (reduces the soot burning temperature). When traveling on the motorway, this is generally carried out every 400 – 800 km.
- During the passive regeneration, the filter fill level is determined by the sensors in the same manner as in the active regeneration. The engine control unit changes the injection management in order to start the regeneration process.

Due to the positioning of the filter (near to the engine), the emission temperatures are reached that are required for the regeneration process

(no additive required).

When traveling on the motorway, this is also generally carried out every 400 – 800 km.

Attention: interrupting the cleaning process

may lead to serious engine damage.

Depending on the vehicle type, a warning lamp may illuminate during the regeneration. In this case, continue driving until the warning lamp goes out.

If the warning lamp flashes or continues illuminating, regeneration of the filter is not possible. In this case, you should visit a specialist garage immediately (in order to avoid engine damage).

The ash produced when burning the soot particles remains in the filter.

When the filter is saturated with ash, the filter must be cleaned or if necessary, renewed.