Technical information

The Diesel Particulate Filter System DPF

General information

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

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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 my 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.