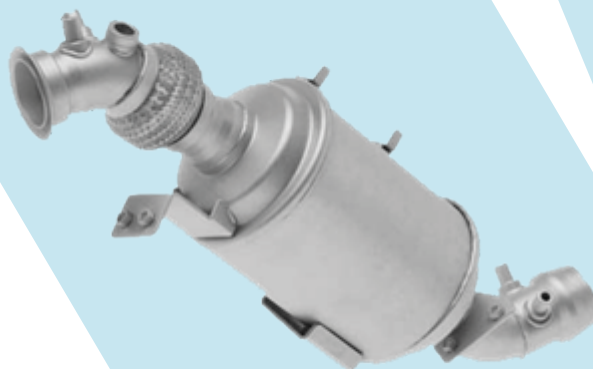
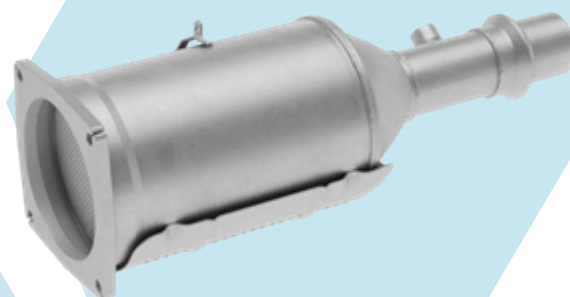
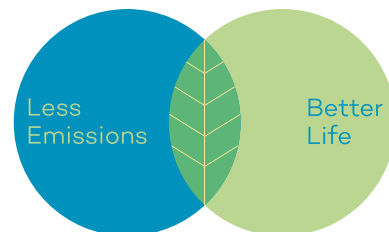


## PRODUCT TECHNICAL SHEET

### Particulate Filter



**EURO 6**



## What is a Particulate Filter?

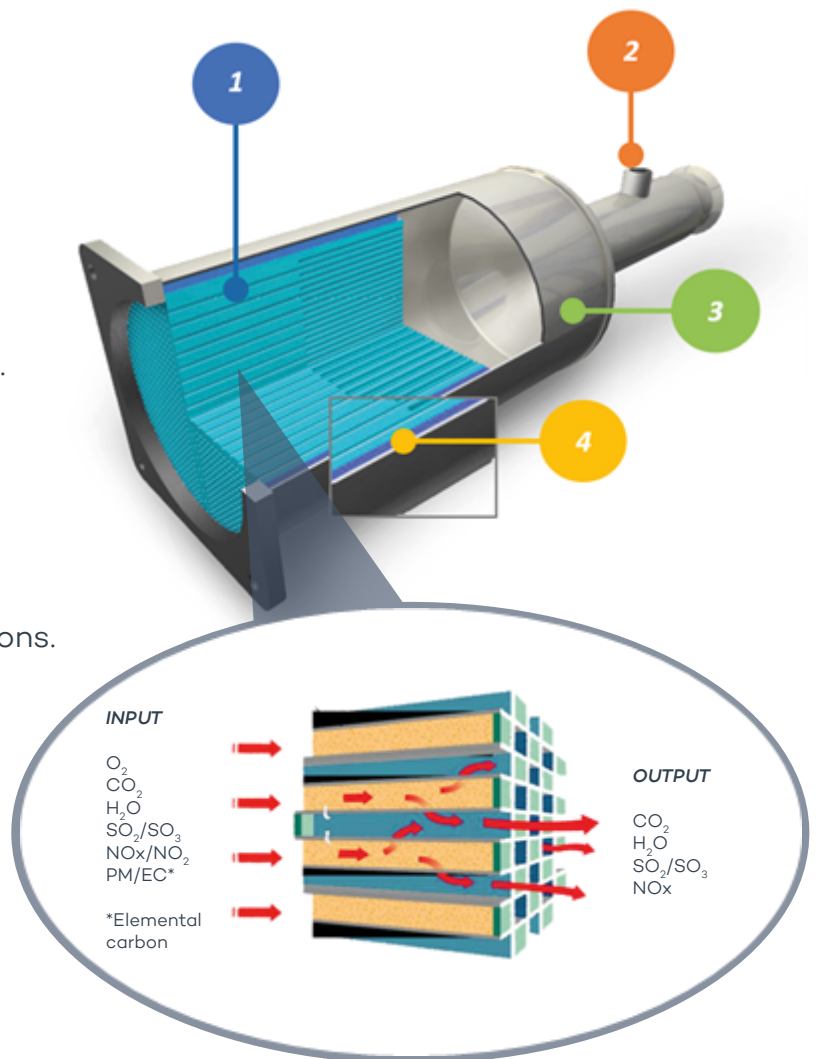
The particulate filter is a device that retains solid particles created by the incomplete combustion in motors. These particles of reduced size - nanoparticles - are extremely harmful to human beings and environment. In the first phase, the particulate filters were solely designated for diesel vehicles. However, due to higher demanding legislation being put into place, it's now possible to find filters in gasoline vehicles (GPF).

## How does it work?

The ceramic filter consists of channels with porous walls, alternately capped at the end - this forces the gases through the walls, retaining the solid particles. A great effectiveness in particle elimination (>95%) is achieved.

## Components

1. Ceramic filter;
2. Differential pressure sensor;
3. Metallic body:
  - protects the filter;
  - allows the docking with the exhaust.
4. Extensible mat:
  - fixates the filter;
  - stanching;
  - thermal isolation;
  - protects against shocks and vibrations.



## Monolith's constitution

Material	Cordierite	Silicon Carbide (SiC)
Porosity	≥45	>48
Max temperature (°C)	<1400	<1800
Mechanical resistance at 500°C (Mpa)	>140	>540
Thermal conductivity at 25°C (W/m.K)	2,05	4,81
Filtering efficiency (%)	0,96	0,99

## Regeneration

Regeneration “burns off” (oxidizes) the accumulated particles in the DPF. There are three different types of regeneration: passive, active and forced.

**Passive regeneration** - a soot reduction process via natural conversion. Occurs when ideal driving conditions apply. The DPF becomes hot enough to burn off some of the trapped particles naturally, between 350°C and 500°C. The carbon soot particles are converted into carbon dioxide through two mechanisms.

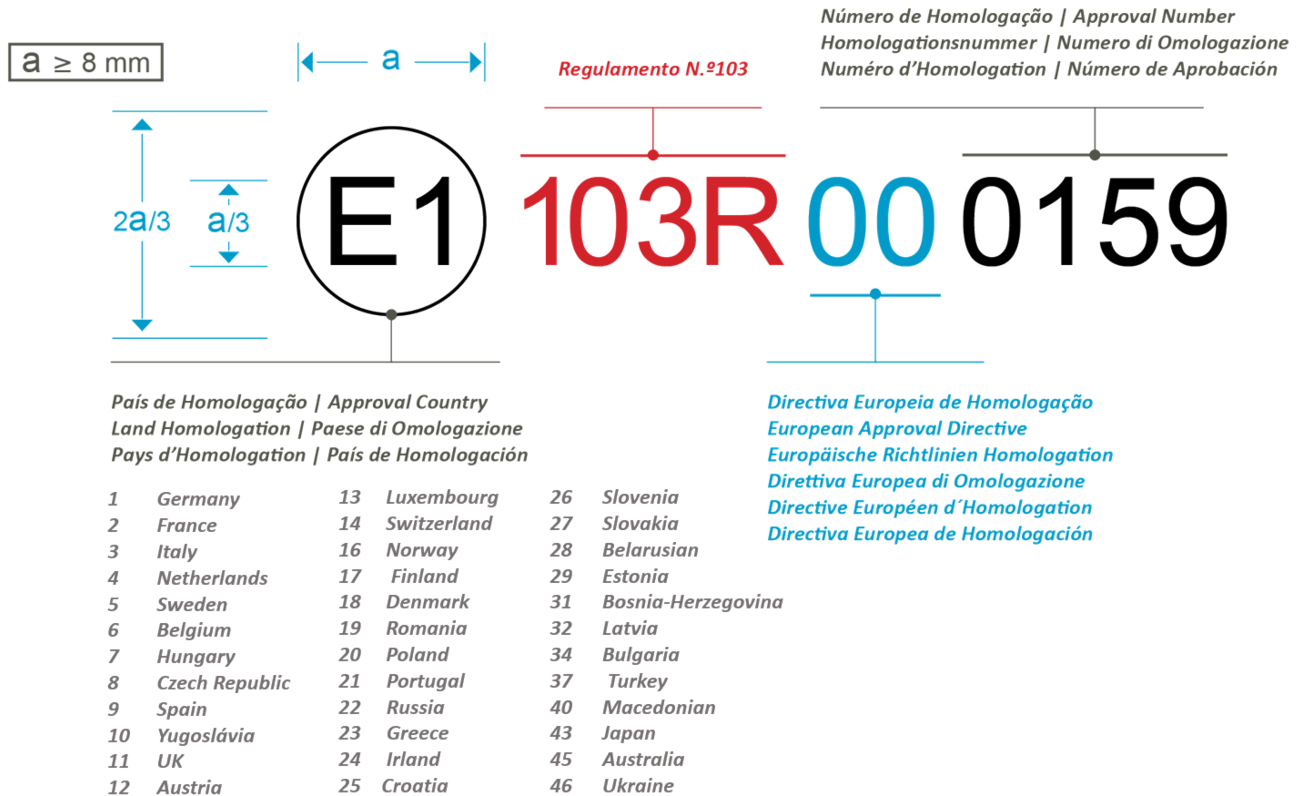
- Nitrogen dioxide mechanism - NO catalytic oxidation into NO<sub>2</sub>, followed by carbon oxidation into nitrogen dioxide.
- Oxygen mechanism - carbon oxidation by oxygen, via a combination of thermal and catalytic mechanisms.

The vast majority of exhaust systems uses the first mechanism.

**Active regeneration** - occurs when the amount of soot particles reaches a defined value of 45% of the DPF capacity. Therefore, active regeneration is an ECU led process that increases the exhaust gas temperature to 500°C - 800°C. When the filter carbon soot deposits reach a certain level, the engine management system initiates the regeneration process, lasting around 10 minutes. DPFs can hold several hundred kilometers worth of soot before this process is initiated. The ECU may also trigger vehicles into limp mode to help protect other components when it senses that the DPF is becoming blocked.

**Forced regeneration** - involves very high temperatures and is carried out by garages, with diagnostics equipment.

## Homologation



## How does it work?

All VENEPORTE diesel particulate filters are submitted to the following tests:

- Fitting test;
- Particles emissions;
- Backpressure measurement;
- Harmful gases emissions (when we have a DOC + DPF or SDPF);
- Power measurement.

## Approved Particulate Filters

- The backpressure and noise levels are identical to the original equipment (OEM/OES);
- The correct backpressure is important for a good engine performance;
- They respect the requirements in terms of the standard emissions values demanded by the European union;
- They allow greater durability of the engine and the exhaust system components;
- Fuel consumption will be identical to the specified by the manufacturer;
- The installation of non-approved particulate filters is not permitted (it is forbidden and illegal) in the European Union.



## Cares to take with your Particulate Filter - prevention of DPF blockage

- Inappropriate assembly;
- Correct and regular use of quality fuel additives;
- Correct use of oils and lubricants;
- Correct driving technique and operating environment - i.e. short journeys will cause the DPF to block due to lack of time for successful regeneration to take place;
- Full, regular servicing of the vehicle is essential;
- Use of high-quality replacement parts;
- Always use new gaskets, fittings, and replace sensors when possible;
- The inappropriate use of sealing paste can damage substrates and lead to local hot spots;
- Follow manufacturer's guidelines when resetting the ECU.

### Available

- **SiC and Cordierite DPFs - more than 405 active references - more than 6600 applications**

## Reasons to choose VENEPORTE

- Developed similar to OEM/OES products;
- Filters properly sized, built with high-quality materials and components;
- High environmental performance - filtration capacity above 95%;
- Range 100% homologated;
- Direct fit assembling - guaranteed;
- High resistance to corrosion due to quality raw materials;
- 100% traceability of all components;
- Without power loss;
- According to Euro 6 emissions levels.