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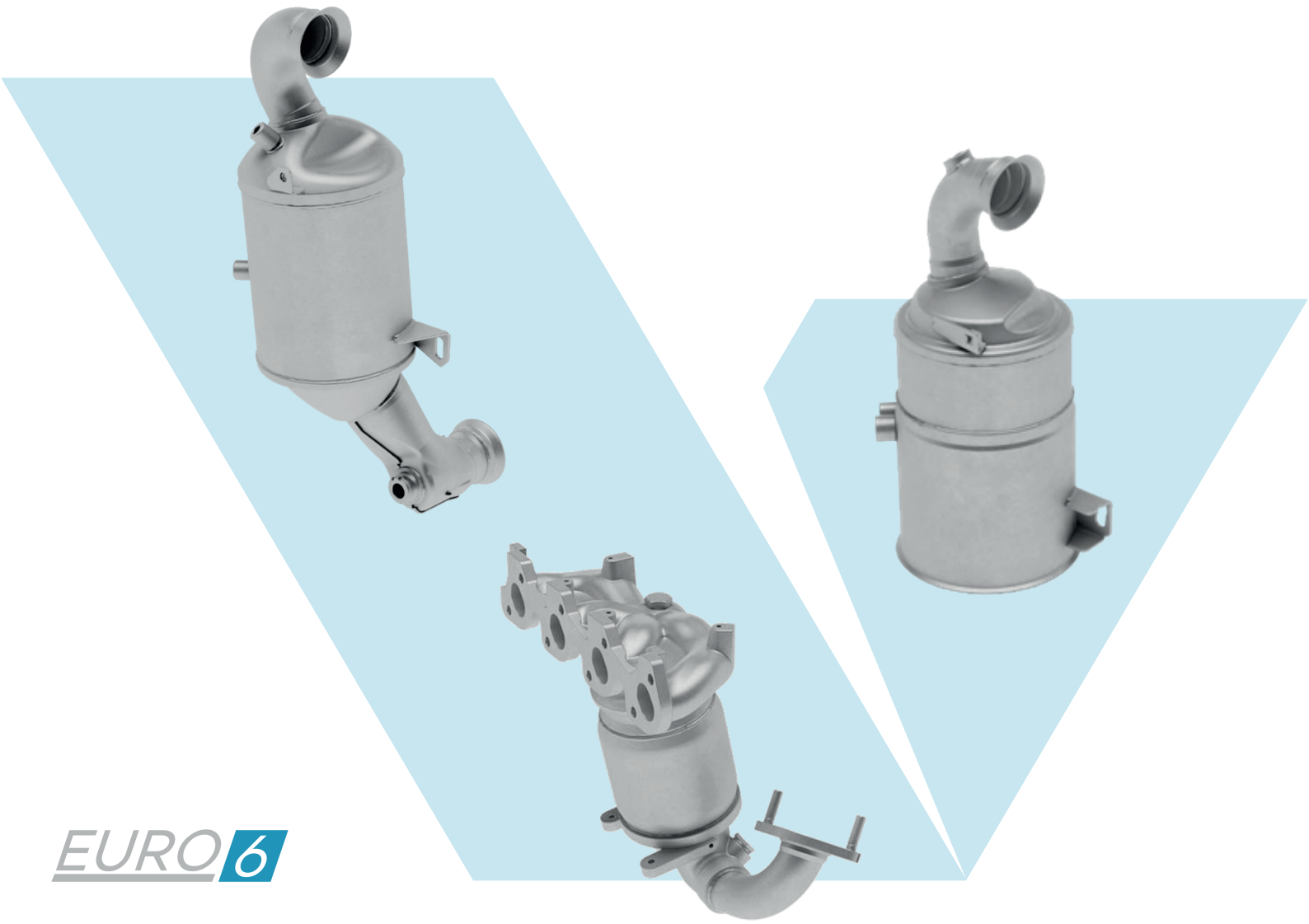
CLEAN ENVIRONMENT SOLUTIONS

PRODUCT TECHNICAL SHEET

Catalytic Converter



EURO 6

100% HOMOLOGATED RANGE

GLOBAL RANGE SUPPLIER OEM / OES / IAM GLOBAL RANGE SUPPLIER

Less Emissions Better Life

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What is a Catalytic Converter?

A catalytic converter is an essential part in the exhaust system when regarding the emissions treatment.

There are two types of catalytic converters:

DOC - Diesel Oxidation Catalyst or Two-Way Catalytic Converter (diesel engines, two gases - CO and HC).

TWC - Three Way Catalyst (petrol engines, three gases - CO, HC and NOx).

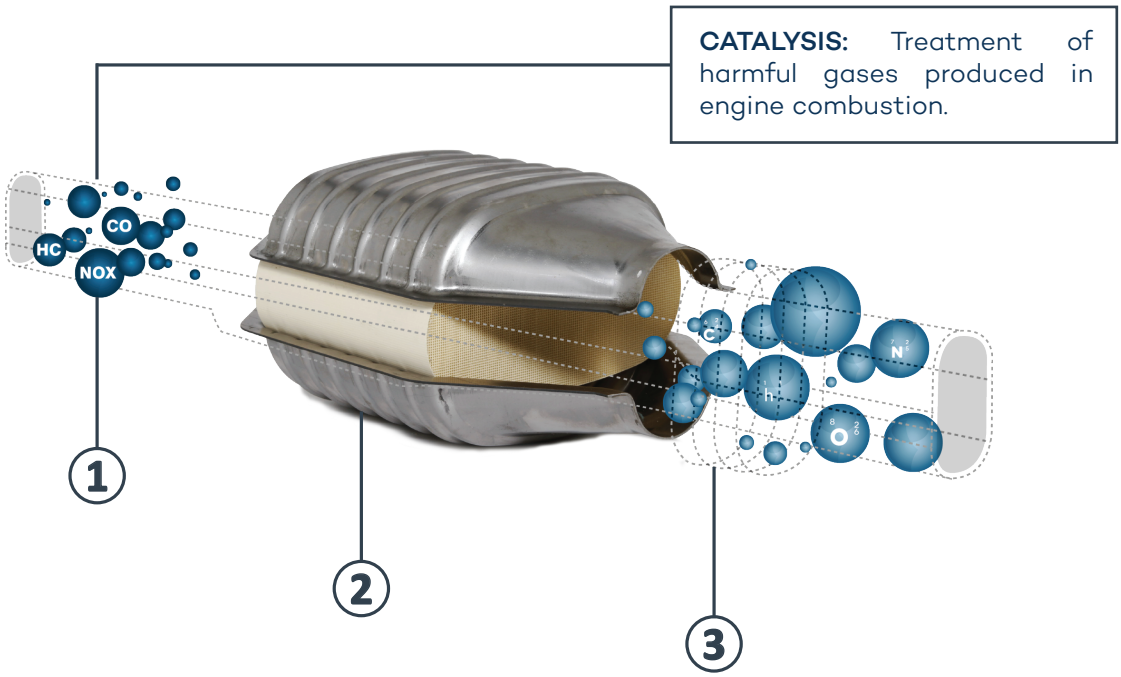
The number of ways of a catalytic converter corresponds to the number of contaminants it transforms.

How does it work?

1. Receives the harmful gases from the engine (CO, HC, and NOx).

2. When passing through the monolith, the precious metals present on the surface react with the toxic gases, transforming them into less polluting gases.

3. After this reaction, the gases travel through the exhaust system in the form of water, carbon dioxide and nitrogen (H_2O, CO_2, and N_2).



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Euro Levels

The Euro Levels are directives established by the European Union, which main goals are to limit pollutant emissions and to define standards for the performance of automotive tests.
The tables below contain the evolution of the European Emissions Standards for diesel and petrol passanger cars.

COMPRESSION IGNITION - DIESEL							
STAGE	DATE	CO G/KM	HC	HC + NOx	NOx	PM	PN #/KM
EURO 1	07/1992	2.72 (3.16)	•	0.97 (1.13)	•	0.14 (0.18)	•
EURO 2	01/1996	1.0	•	0.7	•	0.08	•
EURO 3	01/2000	0.66	•	0.56	0.5	0.05	•
EURO 4	01/2006	0.5	•	0.3	0.25	0.025	•
EURO 5 a	09/2009	0.5	•	0.23	0.18	0.005	6.0×10^{11}
EURO 5 b	09/2011	0.5	•	0.23	0.18	0.0045	6.0×10^{11}
EURO 6 b	09/2014	0.5	•	0.17	0.08	0.0045	6.0×10^{11}
EURO 6 c	09/2017	0.5	•	0.17	0.08	0.0045	6.0×10^{11}
EURO 6 d	01/2020	0.5	•	0.17	0.08	0.0045	6.0×10^{11}

POSITIVE IGNITION - PETROL							
STAGE	DATE	CO G/KM	HC	HC + NOx	NOx	PM	PN #/KM
EURO 1	07/1992	2.72 (3.16)	•	0.97 (1.13)	•	•	•
EURO 2	01/1996	2.2	•	0.5	•	•	•
EURO 3	01/2000	2.3	0.2	•	0.15	•	•
EURO 4	01/2006	1.0	0.1	•	0.08	•	•
EURO 5 a	09/2009	1.0	0.1	•	0.06	0.005	•
EURO 5 b	09/2011	1.0	0.1	•	0.06	0.0045	6.0×10^{11}
EURO 6 b	09/2014	1.0	0.1	•	0.06	0.0045	6.0×10^{11}
EURO 6 c	09/2017	1.0	0.1	•	0.06	0.0045	6.0×10^{11}
EURO 6 d	01/2020	1.0	0.1	•	0.06	0.0045	6.0×10^{11}

The Euro Level emissions limits have been reduced over the years. VENEPORTE has followed those updates and all our products are 100% homologated according to the regulations.

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Management System IATF 16949:2016 ISO 9001:2015 TÜVRheinland CERTIFIED www.tuv.com ID 0910088105

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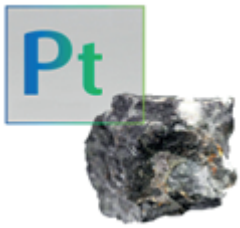
Precious metals main function and importance

The loading* of our products is determined according to the manufacturer's specifications and the European standards - higher than what is common for the products designed to the aftermarket.

*Loading: the amount of precious metals in a substrate - directly influences the catalytic converter efficiency.



Platinum - An excellent catalyst for oxidation reactions, good resistance to contaminants, low thermal resistance and high activity for CO conversion.

Palladium - Good activity for HC oxidation, high thermal resistamce, low resistance to contaminants, and, in some conditions (the correct range of temperature), it may have good NOx conversion.

Rhodium - An excelent catalyst for oxidation reactions, good resistance to contaminants, low thermal resistance, and low activity for NOx conversion (especially good for petrol applications).

VENEPORTE only uses substrates from renowned suppliers that guarantee high performance, durability, and quality similar to the original equipment.

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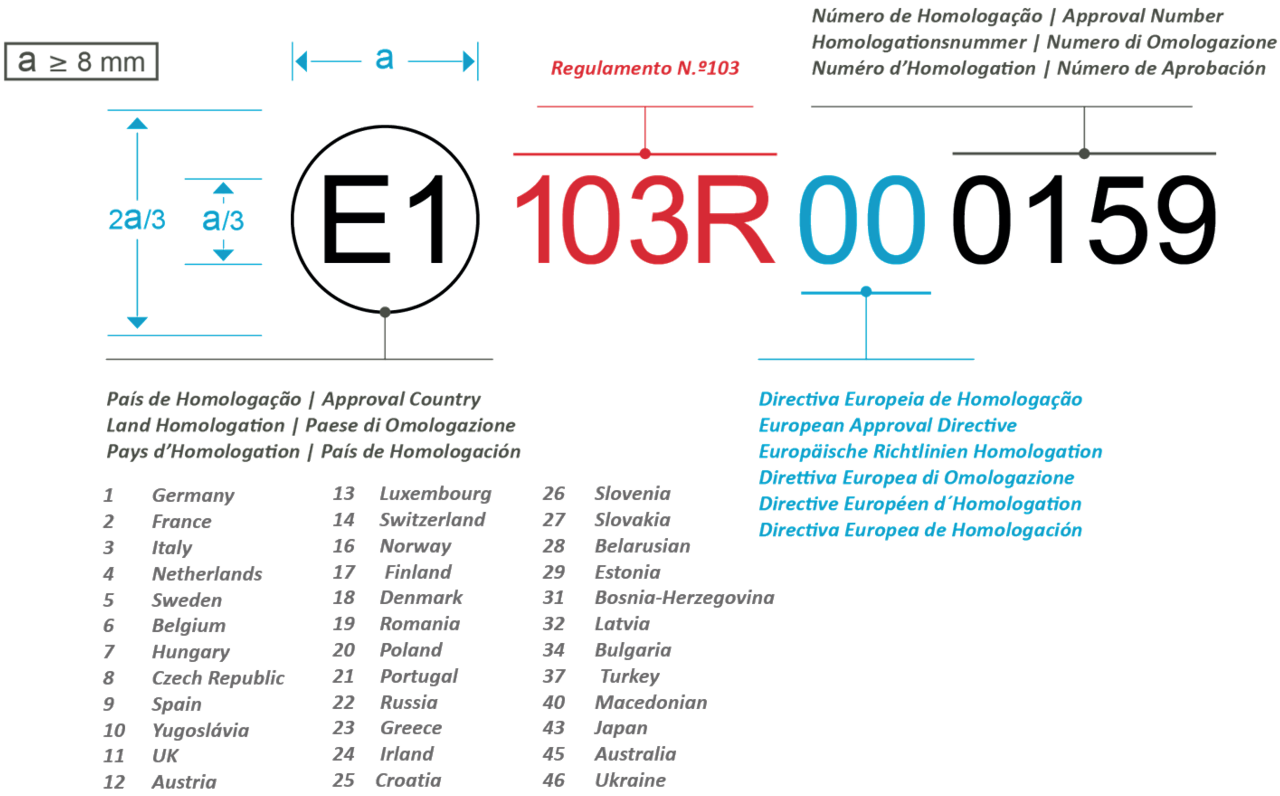
Homologation



Aftermarket catalytic converters must follow the rules set in regulation 103 of the United Nations Economic Comission for Europe (UNECE) regarding their approval.

How does it work?

All VENEPORTE catalytic converters are submitted to the following tests:

- Fitting test;
- Harmful gases emissions: CO, HCs, NOx;
- Backpressure measurment;
- Power measurment.

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Approved Catalytic Converters

• 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 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 similar to the specified by the manufacturer;
• The installation of non-approved catalytic converters is not permitted (it is forbidden and illegal) in the European Union.
• Similar power to the OE.

Cares to take with your Catalytic Converter - Malfunction causes

• Inappropriate assembly;
• Contamination by the usage of incurrect fuel, oil, and additives;
• External impact damage (caused by hitting a solid object);
• Monolith fusion caused by ignition failure.

Available

• Catalytic Converters - More than 900 active references

Reasons to choose VENEPORTE

• Developed similar to OEM/OES products;
• Only uses subtrates from renowned suppliers that guarantee high performance, durability, and quality similar to the original equipment;
• Range 100% homologated;
• Direct fit assembling - guaranteed;
• High resistance to corrosion due to quality raw material;
• 100% traceability of all components;
• According to Euro 6 emissions levels.

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