



# Klarius Catalytic Converter **Training Module**





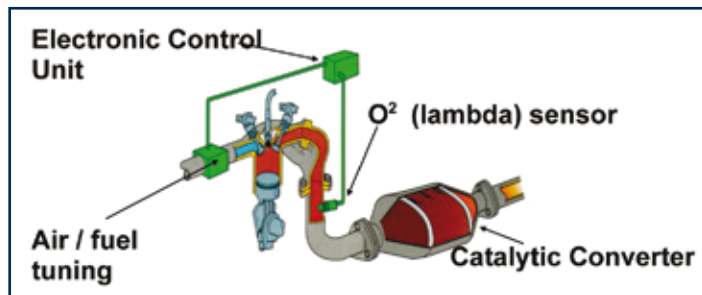
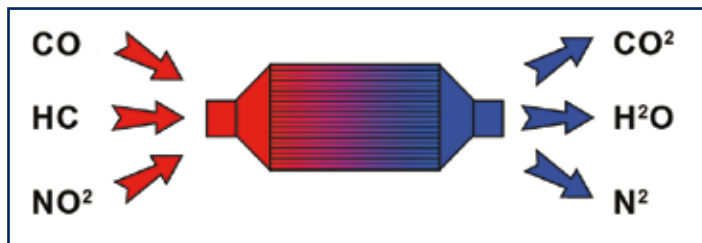
## Why do we need a catalytic converter?

Vehicle pollutants are released daily and are the largest contributor to air pollution in the world.

- 225 tons of hydrocarbons (HC's)
- 300 tons of nitrous oxides (NOx)
- Large quantities of carbon monoxide (CO)

**30% of the global pollution!**

## How does a Catalytic Converter work?



The car uses a 'closed loop' system providing finely controlled air / fuel mixture, through fuel injection, lambda sensor, and electronics to ensure the correct proportion of gasses are present in the exhaust stream for optimum converter efficiency.

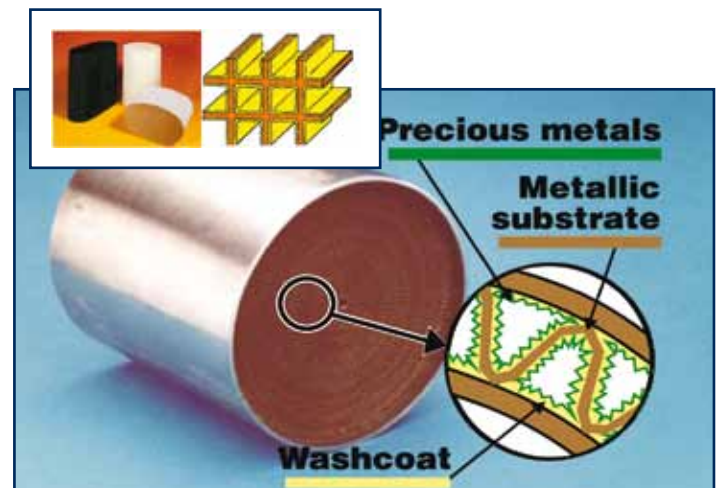
### Operating Temperatures.

Light-Off – circa 300°C is the temperature at which the cat starts to function. (After 2 or 3 mns).

Under normal operating conditions the cat maintains a temperature of circa 600°C.

## Technical information

- **Honeycomb design** with the washcoat finish maximises.
- The surface area (equivalent to 2 football pitches!).
- The exposure of the gases to the precious metals.
- **Precious metals** serve as the catalyst.
- They **convert** the harmful gases to relatively harmless carbon dioxide, water & nitrogen.



## 5 Key advantages

- **Size & shape** as OE design.
- **6mm interam matting** – same as OE.
- **High specification precious metal coatings**, giving OBD compliant post converter gas readings.
- **Stainless steel interam matting protection ring**.
- **Monoliths** developed for specific applications by world leading UK based experts.



## Diesel Cats

**Diesel cat function: to reduce CO and HCs**



- **CO** (Carbon Monoxide): emissions **3 times lower** than petrol engines.
- **HC** (Hydrocarbons): emissions **40% lower** than petrol engines.
- **Particles**: emissions **30 times higher** than petrol engines.
- **NOx** (Nitrous Oxides): emissions **60% higher** than petrol engines.

**Note: The catalyst does not filter, it converts!**

## Type approval

### General information

**Q. Since when?**

**A.** In the UK - October 2009.

**Q. What does it imply?**

**A.** Cars manufactured on or after 1st March 2001 must be fitted with type-approved catalytic converters

**Klarius helps you comply with the law: All Klarius catalytic converters for these vehicles are type-approved.**

**No worries, no hassle!**

### Visual markings

**Q. Can generic type approval numbers be used?**

**A.** A type approval number only covers the models tested. This follows current exhaust standards.

**The following markings must be on display.**

- Manufacturers logo.
- Part number.
- Type approval number.
- Specify if approved for type approved applications.
- The manufacturer must also supply fitting instructions where necessary and details of all models covered by the converter.
- Every type approved catalytic converter has a 6 digit number starting with 31 and 32. All non type-approved, start with 37 or 38.

## Why do catalytic converters fail?

### What are the signs?



**Fitting problem**



**Blocked**



**Mounting problem  
(don't use paste!)**



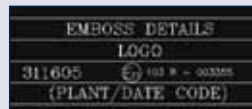
**Damage**



**Tube fracture**



**Heat (Blocked)**



## Monolith failure



*Three-way catalyst with ceramic substrate after 5, 10 or 30 seconds of work on engine bench with 50% ignition failures.*

### Remember

- Always identify the **cause of the cat failure**.
- Never **replace** a cat as part of a fault finding process!
- **The cat is seldom the villain** - more often the victim!



## Klarius UK catalogue

- Klarius exhausts and catalytic converters are homologated by:



### Klarius catalogue available in

- Paper version
- CD
- On line: [www.klarius.eu](http://www.klarius.eu)



## The Klarius Summary

- All products manufactured to **OE specifications**
- **Fits first time every time!**
- **Consistent high availability**
- **97% market coverage**
- **Stringent development procedure**
- **Aggressive new parts development programme**
- **Daily delivery service**
- **Customer support and technical helplines**

