

## The Evolution of Catalytic Converters

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The Past, Present and Future of Catalytic Converters.

Catalytic converters are catalysts that convert the toxic emissions that are produced by an internal combustion engine into far less toxic and ozone-friendly fumes. They were widely adopted in America in 1975 after the EPA implemented a number of regulations governing the fuel efficiency and emissions standards for cars and trucks. Catalytic converters are frequently found on all types of engines today, from lawnmowers to forklifts to buses and trains. A catalytic converter's primary duty is to turn carbon monoxide, nitrogen oxides, and unburnt hydrocarbons into carbon dioxide, nitrogen, oxygen, and H<sub>2</sub>O. Catalytic converters work best when they are hot, with an effective operating temperature of 750° Celsius (about 1400° Fahrenheit). Although the heat is what causes them to work efficiently, it is also what causes their demise. Catalytic converters can also get clogged over time, which will ultimately hurt the performance of your vehicle. It is not uncommon to replace one or several catalytic converters on ten year old vehicles. There are two types you can get: universal fit or direct-fit replacement. Universal fit catalytic converters come in a variety of sizes and are intended to be welded into place. Direct-fit catalytic converters are nearly identical, with the exception that these cat's are intended to be bolted into place. To clarify, the direct-fit catalytic converters replace an entire section of the exhaust system, which means that it was manufactured specifically for your vehicle, versus the universal fit catalytic converters which are designed to be fabricated and welded into place. So while the universal fit catalytic converters are sometimes cheaper, the direct-fit catalytic converters will be easier to install.

Over the last four years, Mazda has been toiling in their secret laboratories. They have managed to develop a new type of catalytic converter that uses 70-90% less platinum, rhodium and palladium in the construction of their catalytic converters. These precious metals are what makes the chemical reactions happen and are also the main reason that catalytic converters are so expensive. The potential for cost savings is huge with this new advancement and Mazda expects to be fitting their cars with the new catalytic converters by 2010. Nissan has also recently announced that they too have the technology for cheaper catalytic converters, but they only claim a 50% reduction in the precious metals. The core of the new technology is using nano-sized ceramic particles with the precious metal embedded in them. This allows for more surface area so the catalyst can be more effective. Nothing has been said about how well the catalyst flows exhaust gases, which is an important specification for performance vehicles. The more freely the exhaust gases flow out the tail pipes, the more horsepower and torque your engine can make, not to mention that the engine will also be more responsive. Keep your eyes on the news for more updates about this exciting cutting edge technology.

For more information about catalytic converters, click on the following links: [catalytic converter](#) & [Magnaflow Direct-Fit catalytic converter](#)

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Author: Matthew Rimcrest

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