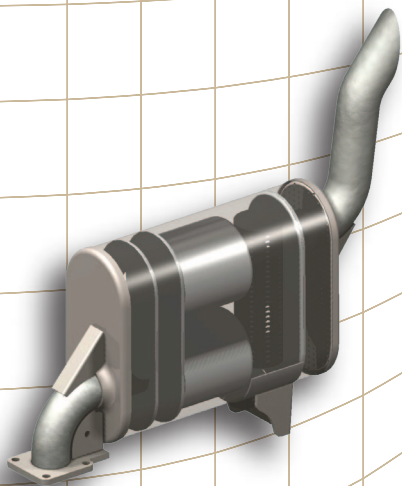


# CATALYTIC MUFFLERS



## CATALYTIC MUFFLER TECHNOLOGY

Catalytic mufflers present a cost effective solution to the problem of CO, HC and NO<sub>x</sub> reduction in LPG, CNG and gasoline powered engines in material handling, construction and gen-set applications. Nett catalytic mufflers are quality designed to fit most standard muffler configurations therefore reducing space constraint issues and corresponding retrofit.

### *High reduction of toxic gases.*

Carbon monoxide emissions are typically reduced by over 95%. Hydrocarbons are reduced by 70 to 90%. The characteristic smell of propane exhaust is virtually eliminated. Over 95% reduction of nitrogen oxides is achieved when the Nett 3-way closed-loop catalyst system is used. Up to a 50% DPM reduction is observed when used in diesel applications.

### *Excellent noise attenuation.*

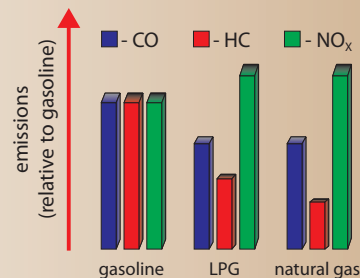
Nett catalytic mufflers match or surpass the noise attenuation performance of the original silencer.

### *Direct-fit design.*

All models are a direct-fit replacement for the original muffler. Installation time and labor costs are reduced to a minimum.

### *Long life and high durability.*

Mufflers are built entirely from corrosion resistant materials.



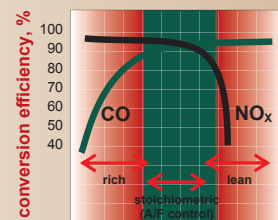
**Exhaust Emissions From Different Types of Engines**

## CLOSED-LOOP & OPEN-LOOP CONTROL SYSTEM

The complete closed-loop system includes a catalytic muffler with a built-in 3-way catalyst, a zirconium oxygen sensor, and an electronic A/F controller. The controller receives a feedback signal from the O<sub>2</sub> sensor and maintains the engine A/F ratio at the stoichiometric point, thereby maximizing catalyst performance.

The fundamental reactions in a 3-way catalyst are between CO and HC on one side and NO<sub>x</sub> on the other. To achieve high conversions of all three pollutants, their concentrations must be at the stoichiometric ratio. It simply means that the amount of CO and HC should match the amount of NO<sub>x</sub> present in the system, since they effectively cancel each other out.

The open-loop system is a catalytic muffler with a built-in 3-way catalyst installed directly into the existing exhaust system. The performance of the catalyst will vary depending upon the specific engine's A/F ratio. NO<sub>x</sub> reductions are typically not as high in this configuration.



**A/F mixture Performance of the 3-Way Catalyst System**



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**...the emission control authority.**