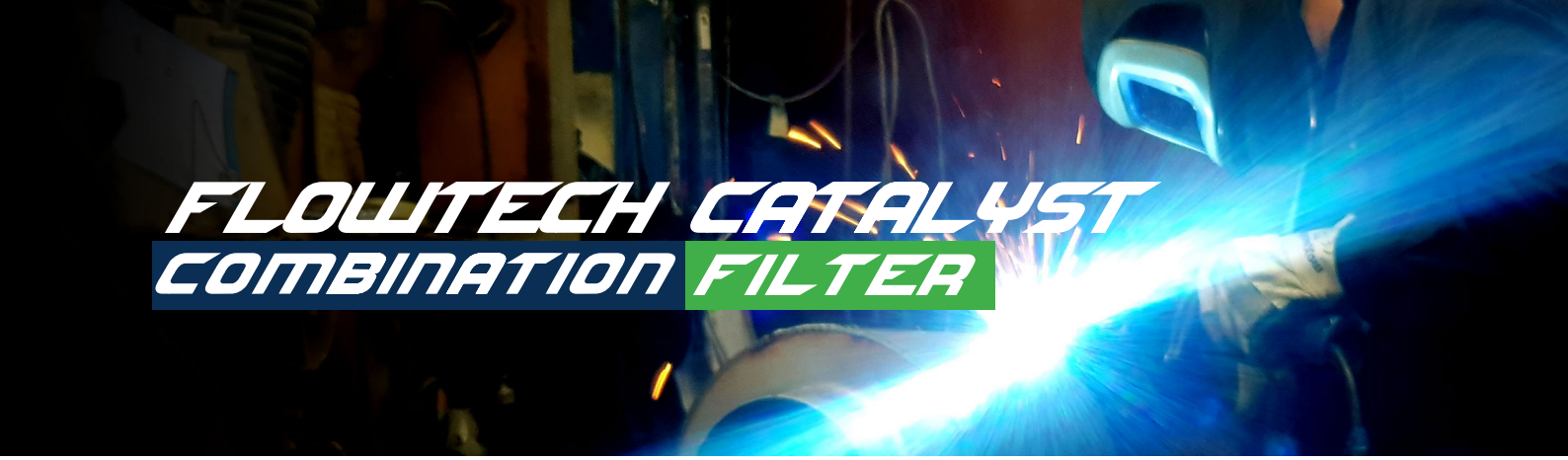


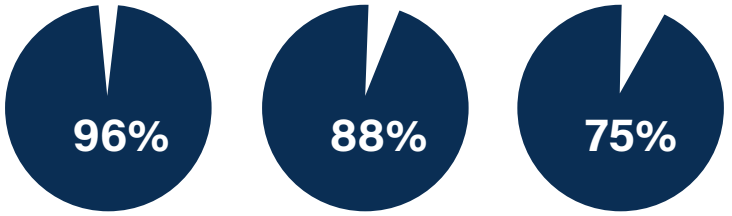
FLOWTECH CATALYST COMBINATION FILTER

The Flowtech Catalyst Combination filter is meticulously engineered to effectively lower emissions to meet the standards required across various applications. This filter is popular for its low-maintenance features and is generally less restrictive, smaller and requires less maintenance than a DPF-Ceramic.

Utilising Partial Filter Technology, these units are also known as Partial DPF's

EMISSION REDUCTION PERFORMANCE

The **Flowtech Catalyst Combination Filter** reduces the three major pollutants, improving air quality and filtration performance.



CARBON MONOXIDE (CO) | HYDRO CARBON (HC) | PARTICULATE MATTER (PM)

WHAT MAKES FLOWTECH CATALYST COMBINATION FILTER THE IDEAL CHOICE?

- Typically made from 304 stainless steel (SS)
- Low-maintenance design
- Clamped or welded options
- Can be built as a standalone system
- Integrate seamlessly with existing OEM equipment
- Easy installation
- Optimal performance
- Australian Made

CREATING A HEALTHIER WORKPLACE

The **Flowtech Catalyst Combination Filter** is able to enhance workplace safety practices by minimizing the inhalation of pollutants by staff, particularly those in close proximity to diesel engines.

This not only reduces the environmental impact but also ensures a healthier work environment for everyone involved.

FLOWTECH ADVANTAGE

A DIVISION OF CSC GROUP AUSTRALIA FOR OVER 38 YEARS

EASILY ORDER OR SEEK ADVICE

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EMAIL
sales@cscgroup.com.au

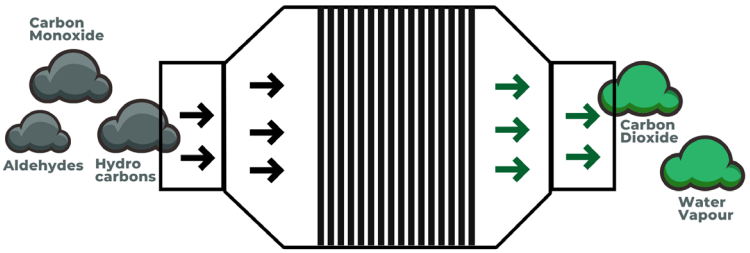
A GAME CHANGER FOR DIESEL-POWERED ENGINES

The **Flowtech Catalyst Combination Filter** specializes in diesel-powered engines and equipment. It reduces emission levels of **Carbon Monoxide (CO)** by up to **96%, Hydrocarbons (HC)** by up to **88%** and **Particulate Matter (PM)** by up to **75%** from diesel exhaust. A simple, inexpensive, maintenance-free and suitable for all types of diesel engines applications.

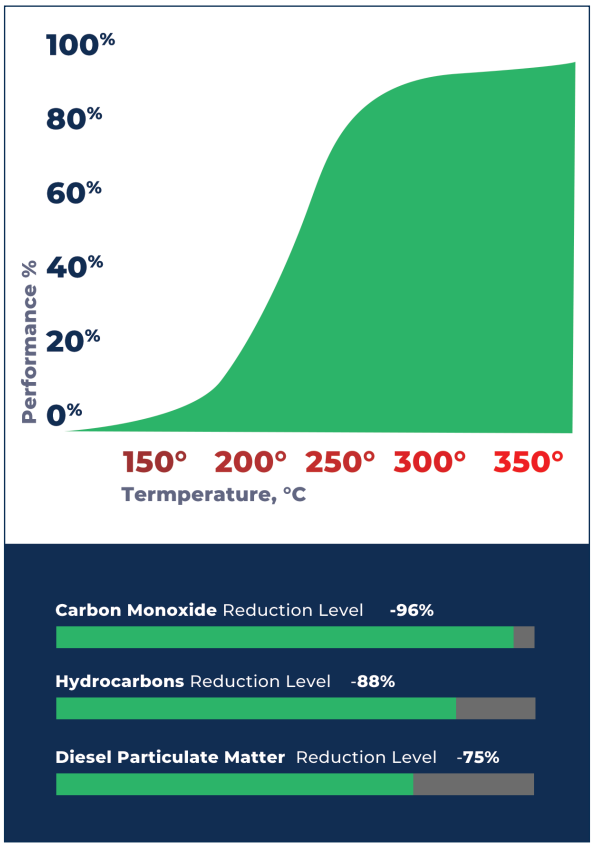
TECHNICAL OVERVIEW

OF HOW A FILTER OPERATES

The **Flowtech Catalyst Combination Filter** effectively transforms harmful substances found in diesel exhaust, including *carbon monoxide*, *hydrocarbons*, and *aldehydes*, into non-toxic compounds. The process then results in the emission of benign substances: ***carbon dioxide*** and ***water vapour***.

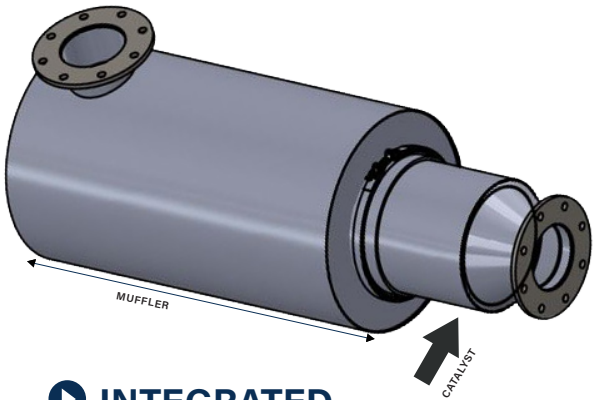


The effectiveness of the emission output is dictated by the state of the engine, the temperature of the exhaust, and the composition of the untreated exhaust gases. The **Flowtech Catalyst Combination Filter** necessitate a base temperature of around **180°C** (360°F) for the conversion process to initiate. Optimal catalytic performance is achieved at temperatures exceeding **250-300°C** (480-570°F).



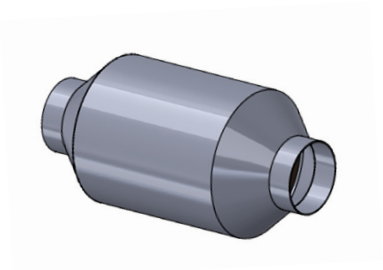
AVAILABLE CONFIGURATIONS

A TAILORED SOLUTIONS FOR YOUR DIESEL-ENGINE EQUIPMENT



INTEGRATED

The Integrated configuration is built into the muffler and is selected based on the size of the engine.



UNIVERSAL FIT

The universal fit configuration offers a straightforward solution for fitting into a wide range of diesel-engine equipment, making it a versatile choice.

We offer expert advice on the ideal Catalytic Converter based on available space, shape, materials, and required emission levels.

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DELVE DEEPER INTO DIESEL EMISSIONS

Diesel engines turn fuel into power, but the exhaust gases are harmful to human health and the environment.

The table shows the range of toxic materials in diesel exhaust.

New engines have lower values, while *older ones have higher.*

CO vppm	HC vppm	DPM g/m³	NOx vppm	SO_2 vppm
5 to 1,500	20 to 400	0.1 to 0.25	50 to 2,500	10 to 150

POSSIBLE HAZARDS OF EXPOSURE TO HARMFUL GASES

- Respiratory Issues
- Eye Irritation
- Skin Reactions
- Neurological Effects
- Carcinogenic Effects
- Environmental Effects

CO & HC

Carbon monoxide (CO), Hydrocarbons (HC), and aldehydes are generated in the exhuast as the result of incomplete combustion of fuel. When engines operate in enclosed spaces like ***underground mines***, *buildings*, *tunnels*, or *warehouses*, carbon monoxide accumulate in the air and cause headaches, dizziness to the personnel working in the vicinity.

Hydrocarbons and aldehydes can irritate the eyes and cause choking. They also contribute to smog, harming the environment.

PM (or DPM)

Particulate Matter (PM), a complex aggregate of solid and liquid material. Its origin is carbonaceous particles generated in the engine cylinder during combustion.

Generally, DPM is divided into three basic fractions.

Solids - dry carbon particles, commonly known as soot
SOF (Soluble Organic Fraction) heavy hydrocarbons
SO4 - Sulfate fraction, hydrated sulfuric acid.

NO_x

Nitrogen Oxides (NOx) are generated from nitrogen and oxygen under the high pressure temperature conditions the engine cylinder. NOx consist mostly of nitric oxide (NO)and few percentage of nitrogen dioxide (NO2) Nitrogen Dioxide is very toxic. NOx emissions are also a serious environmental concern because of their role in smog formation. **Note:** The **Flowtech Catalyst Combination Filter** has no impact on (NOx)

SO_2

Sulfur dioxide (So_2) is generated from sulfur present in diesel fuel. The concentration of SO_2 in the exhaust gas depends on the sulfur content of the fuel. Low sulfur fuels of less than 0.05% sulfur are being introduced for most diesel engine applications. Sulfur dioxide is a colorless toxic gas with characteristic, irritating odor and have a profound impact on the environment being the major cause of acid rains. **Note:** The **Flowtech Catalyst Combination Filter** has no impact on (SO_2)

METALLIC HONEYCOMB

The Flowtech Catalytic Combination Filter features a metallic honeycomb enclosed in a stainless steel case.

The honeycomb structure is made up of plenty of small parallel channels presents a high catalytic contact area for the exhaust gases.

EMISSIONS REGULATIONS

REGULATIONS RELATED TO EMISSIONS AND AIR QUALITY ARE DIVIDED INTO TWO CLASSES

TAILPIPE EMISSION REGULATIONS

All diesel engines for highway applications and some for off-road use are subject to the "Tailpipe" emission regulations. These regulations specify the maximum amount of pollutants allowed in exhaust gases from a diesel engine.

AMBIENT AIR QUALITY STANDARDS

Many applications of diesel engines in confined spaces are regulated through ambient air quality standards rather than by tailpipe regulations. The ambient air quality standards specify the maximum concentrations of air contaminants, known as Threshold Limit Values (TLV) or Permissible Exposure Limits (PEL) which are allowed in the workplace.

These regulations are set and enforced by (the Occupational Health and Safety Administration) or MSHA (Mining Safety and Health Administration). The end-user is responsible for ensuring that the emission control measures used are appropriate for the polluting equipment. The exact Threshold Level Values of particular air contaminants vary between different jurisdictions. TLV values for diesel exhaust pollutants, based on the ACGIH guidelines for 1993-1994 are listed below.

THRESHOLD LIMIT VALUES FOR DIESEL EXHAUST POLLUTANTS

Substance	TWA[1] ppm	TWA[1] mg/m³	STEL[2] ppm	STEL[2] mg/m³
Carbon Monoxide	25	29	-	-
Nitric Oxide	25	31	-	-
Nitrogen Dioxide	3	5.6	5	9.4
Formaldehyde[3]	0.3[4]	0.37[4]	-	-
Sulfur Dioxide	2	5.2	5	13
Sulfuric Acid	-	1	-	3
Diesel Particulates	-	0.15[5]	-	-

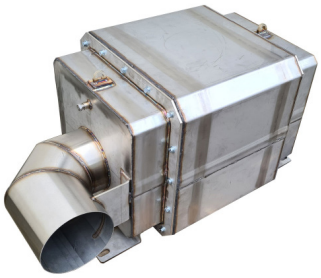
CASE STUDY: ACTUAL IMPLEMENTATION OF FLOWTECH CATALYST INTO CLIENT'S SYSTEM

The Flowtech Catalyst Combination Filter is widely utilized in various diesel engine applications. These filters have undergone extensive testing and have proven to be effective in the following areas.

- Underground transport infrastructure during and post construction
- Underground Mines
- Semi enclosed carparks

CUSTOM FLOWTECH CATALYST COMBINATION FILTER

DESIGNED FOR MINING/OFF-HIGHWAY EQUIPMENT



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