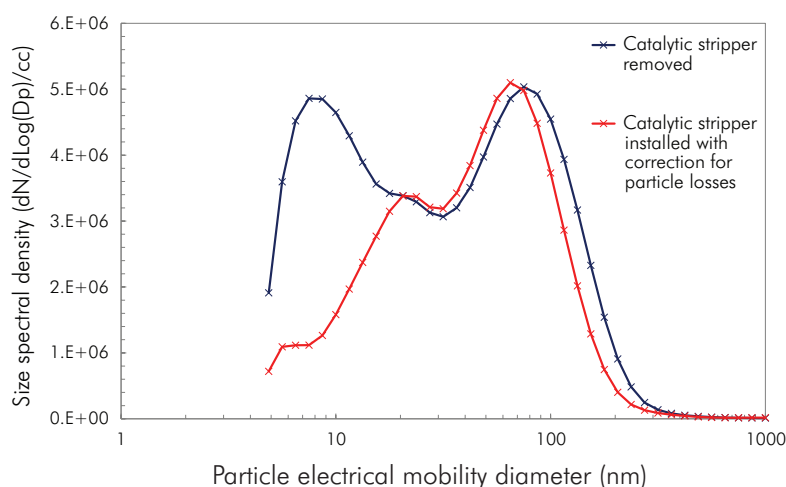


## Catalytic Stripper Accessory for DMS500

NEW !

DMS500 measurements of GDI particles  
sampled upstream of turbocharger during WLTC



Removes volatile particles

Fits existing & new DMS500s

Losses fully characterised

Can be bypassed if desired

Hardware & software integration

Software select 10 & 23nm roll-offs

### Introduction

The work towards adoption of a 10nm roll-off for Particle Number measurements has highlighted questions surrounding the suitability of a Volatile Particle Remover approach on its own. Future legislation is still under development, but one option being considered is to add a Catalytic Stripper which will actively oxidise volatile material such as hydrocarbons.

### Existing DMS500 Dilution

The DMS500's existing two stage dilution system, which is already fully integrated in hardware and software, allows the addition of a Catalytic Stripper with no adjustments required to the existing hardware.

The DMS500's existing 1st dilution system using metered compressed air ensures that an oxidising environment exists to allow the Catalytic Stripper

to function, even when sampling raw gasoline exhaust at lambda 1 (stoichiometric air fuel ratio).

The DMS500's 1st dilution is applied at the inlet to the heated sample line, introducing pre-heated dilution air at 191°C in an annular sheath around the sample flow. This ensures that thermophoretic losses in the 1st diluter are minimised.

The DMS500 is available with up to 7 metre sample lines for convenience in the test cell, while unique low pressure operation ensures that even with a 7 metre line the residence time in line is just 75 ms, ensuring low diffusion losses and preserving time response.

Inside the DMS500, the use of three filtered sheath flows inside the charger avoids contact of the sample gas with the walls, to ensure that even small and highly diffusive particles reach the detectors.

## Particle Loss Characterisation

Cambustion's existing traceable calibration can be extended, to provide loss corrected calibration files for the DMS500 with and without the Catalytic Stripper fitted, allowing the user to effortlessly generate loss corrected data with no post processing required. Inlet to detector calibration of the DMS500 system means you can be confident that all aspects of the system are correctly calibrated.

## Roll-Off

The DMS500's calibration files may be generated with different roll-offs, allowing the user to generate loss-corrected data based on >10 nm or >23 nm particles, or indeed across the whole 5–1000 nm or 5–2500 nm range.

## Installation Process

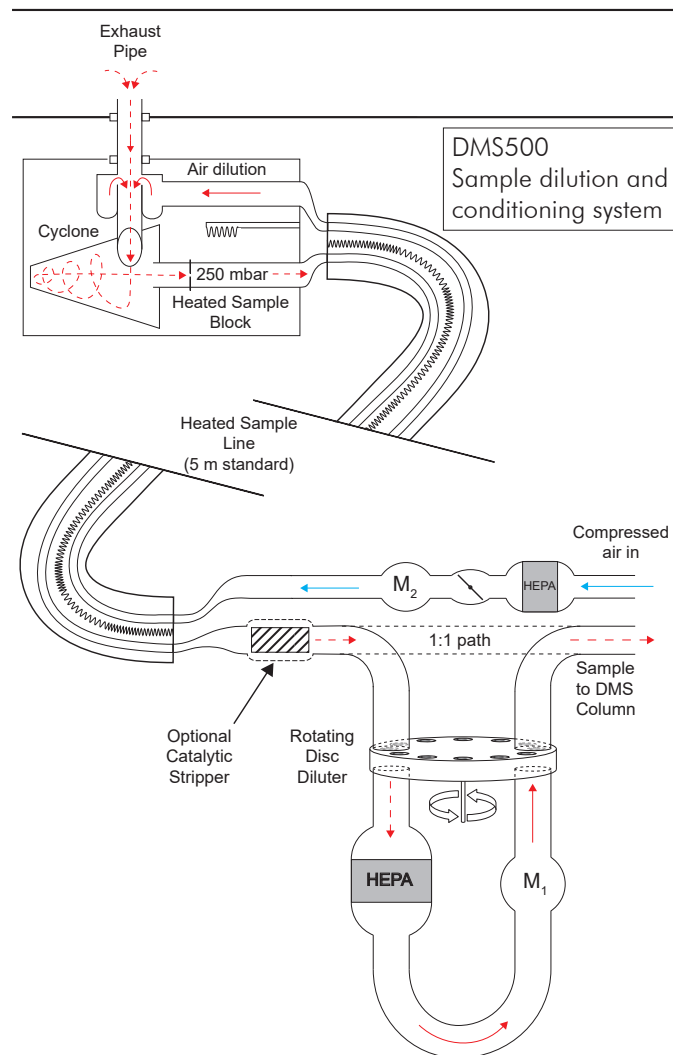
The Catalytic Stripper accessory for the DMS500 has been conceived from the start as an integrated package, which customers can fit to existing DMS500s. The Catalytic Stripper can also be easily bypassed by the user to allow comparison measurements.

## Software Control

The supplied software integrates with the DMS500 via AK protocol over Ethernet. The software controls the temperature of the catalyst to ensure that the target gas temperature is achieved, guaranteeing repeatable catalyst performance. Full error detection and warning, together with logging of performance parameters is included, allowing users to monitor performance during operation, and after the event.

## Optimised for Low Loss & Fast Time Response

Diligent design of the cooling system (required to reduce the gas temperature from the catalyst exit for entry to the DMS500) ensures that the gas is cooled while minimising particle losses, and active control of the cooling system ensures repeatable system performance independent of ambient conditions. Careful fluid system optimisation ensures that the market-leading fast time response of the DMS500 ( $T_{10-90\%}$  200ms) is not compromised by the installation of the Catalytic Stripper.



Raw exhaust sampling with the DMS500

## Specifications

Dilution (existing DMS500)	Two Stage. 1st dilution hot @ 191°C 2nd dilution cold
Sampling Locations	As DMS500, standard pre- & post DPF/GPF, CVS tunnel & ambient
Environmental Conditions	+5 – +40°C 0–95% RH non-condensing
Control Interface	Ethernet
Warm-up Time	30 minutes
Gas Temperature	350°C typical (software selectable)
Electrical supply	100–240V AC 500W

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All specifications subject to change without notice