

# CAMBUSTION DPG

## DPF Testing System

- Accelerated testing & unattended operation
- Measurement of  $\Delta P$  vs soot mass
- Load DPFs for engine testing
- Regeneration & filtration efficiency tests
- Results correlate with engine test data
- Tests Light & Medium Duty DPFs with Diesel soot



The Cambustion DPG allows Diesel Particulate Filter testing at full-scale flow rates and temperatures, with real Diesel soot. It avoids the expense of a full engine test facility while providing more controllable, faster and more repeatable results.

### Quality Assurance and R&D Applications

In production quality assurance applications the DPG allows validation of back-pressure characteristics, filtration efficiency and robustness to regeneration.

In an R&D environment it provides economic and repeatable soot loading of DPFs to support engine and after-treatment development, and rapid comparisons of new filter types.

### Tests Exhaust Systems or Uncanned Filters

The DPG test section will accommodate most vehicle DPF systems. For testing uncanned DPFs, the Filter Test Housing (FTH) is available. This allows fast and easy installation and removal of the filter without canning operations or hazardous mounting materials.

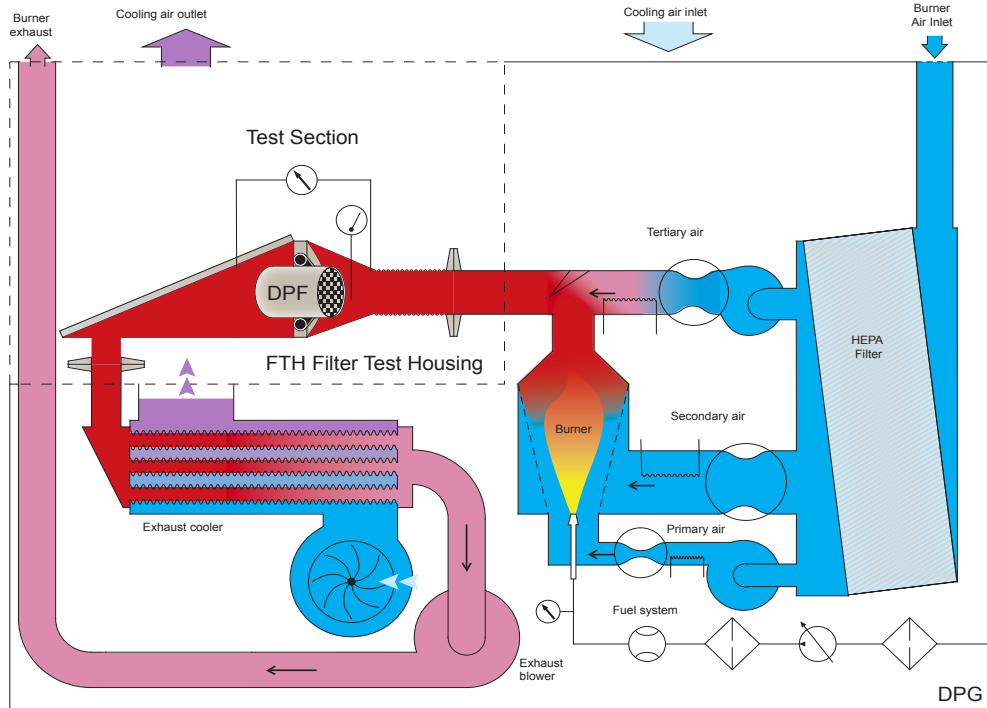
### Automated Operation

The control software allows unattended operation of the DPG most of the time. Complex sequences of different operating conditions are executed automatically. For example, a typical test to determine the backpressure vs soot load characteristic consists of:

1. Warm-up DPF to correct operating temperature and flow rate (without depositing any soot).
2. Load DPF to prescribed load or back-pressure at chosen soot load rate (e.g. 20 g load at 10 g/hr).
3. Maintain loaded DPF at high temperature ready for accurate weighing or further testing.

Programs for other tests such as flow sweeps, regeneration and maximum soot load determination are provided and custom tests can be implemented easily.

Test reports are automatically generated, including evaluation of performance specifications at specified soot loads and checking part-type specific pass/fail criteria.



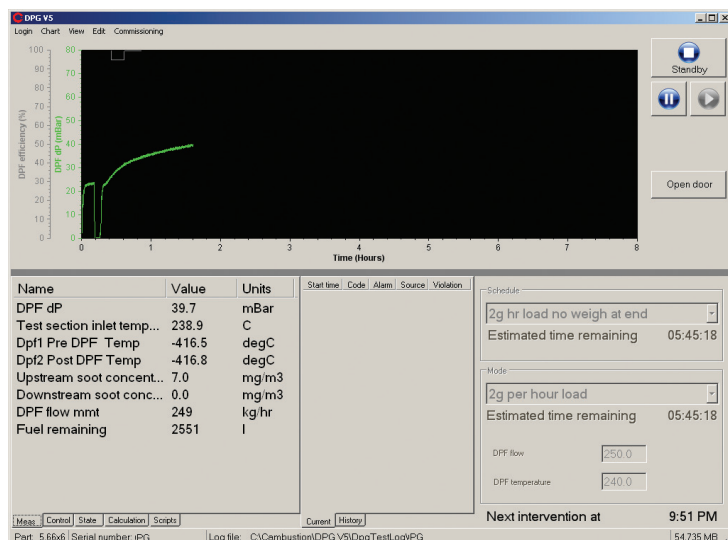
## System Elements

A whole DPF test facility consists of just the DPG system, control PC, weighing scales and optionally an oven for preconditioning filters. No external ventilation fans are required, and fuel can simply be drawn from a tank.

Particulate monitoring instrumentation can be integrated into the DPG, which allows automated measurement of the filtration efficiency of filters, and its variation with soot load.

With the optional Subscale Testing System, filters of all sizes from research scale samples of less than 1 litre, up to filters for Medium Duty engines can be tested on the DPG.

The DPG software logs all the DPF parameters such as flow, temperature and backpressure throughout the test. As well as



automatic generation of test reports, software tools are provided to manage the results of tests of many parts and automate performance comparisons. For regeneration testing, the system can record the temperature of up to 20 thermocouples fitted in the filter for monitoring thermal gradients and regeneration.

## Operating Principle

The DPG uses a Diesel burner with two air flows to produce a controlled particle output. This flow is mixed with a tertiary air stream, allowing precise control of the temperature and flow rate in the DPF, independent of burner operating conditions.

As shown above, the DPG uses an exhaust blower downstream of the DPF to draw flow through the DPF and burner. This has two principal advantages:

- The burner pressure is independent of the DPF back-pressure, assuring uniform soot generation.
- The system operates at sub-ambient pressure, eliminating the risk of exhaust leaks.

## Specifications

Flow through DPF	Loading: 200 – 500 kg/h Cold ΔP test: up to 800 kg/h
Maximum ΔP across DPF	300 mbar (with optional supplementary blower)
Soot generation rate	2 – 20 g/h
DPF inlet temperature	200 °C – 350 °C (Loading) Max. 800 °C (Regeneration)
Dimensions (w/h/l)	1000 mm x 1560 mm x 2900 mm
Power supply	63A, 3 phase AC, 400 – 480v

For more information, please contact:

sales@cambustion.com      tel: +44 1223 210250  
www.cambustion.com      fax: +44 1223 210190

J6 The Paddocks, 347 Cherry Hinton Road,  
Cambridge, CB1 8DH United Kingdom

All specifications subject to change without notice