

### Eminox

Eminox optimise exhaust performance and reduce the number of physical prototypes through the use of Flowmaster.

Eminox is a market-leading designer and manufacturer of purpose designed exhaust systems and emission control systems for commercial-diesel powered vehicles. Based in the UK and part of the privately-owned Hexadex Group, Eminox was established in 1978 and provides solutions for both OEM and Retrofit.

Eminox exhaust systems are purpose designed to meet specific applications, operating conditions, environmental requirements and legislation. Every exhaust system has to meet a number of requirements including the engine manufacturer's requirements for maximum permissible back pressure and the vehicle requirement for maximum noise level. High back pressure can affect fuel consumption and engine/turbo reliability so it is important to design an exhaust system within acceptable levels.

During the development of a mobile crane exhaust system, Eminox carried out a modelling exercise to determine engine flow conditions in their design.

The exercise was modelled and solved using Flowmaster compressible steady state which predicted a back pressure of 10.37 kPa. The same design was

*“Using Flowmaster really benefited the development of this crane’s exhaust. We were within 99% of test data.”*

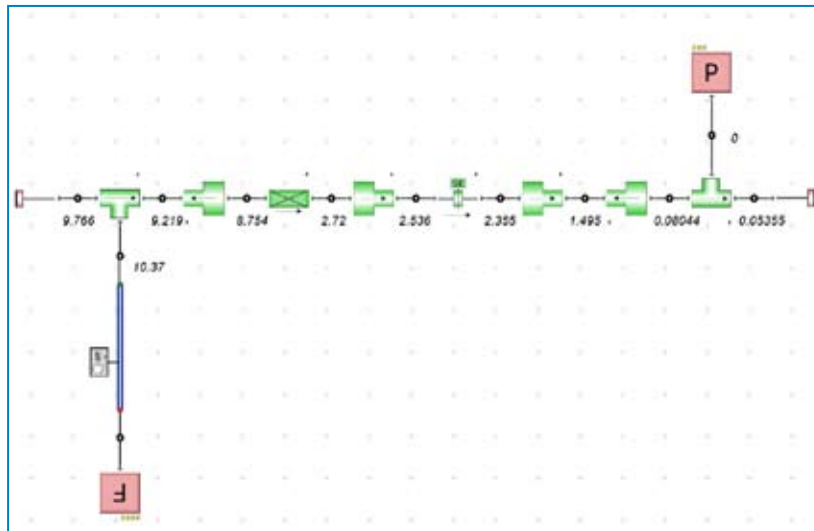
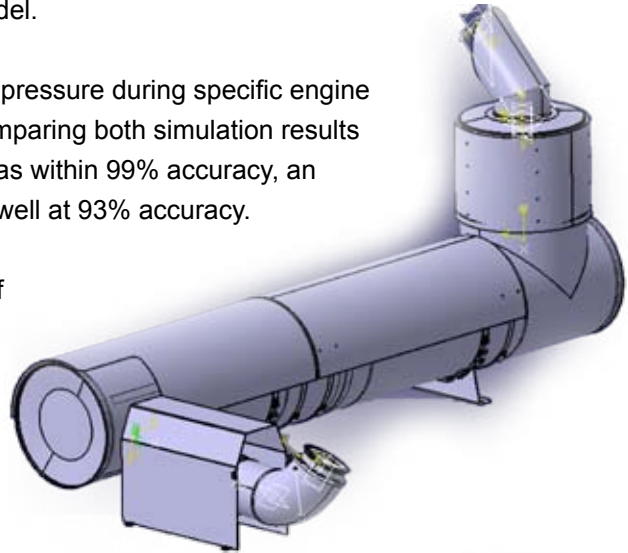
*Aden Bott, R&D Engineer, Eminox*



then modelled using the in-house incompressible model.

A cold flow test rig facility was used to measure back pressure during specific engine flow conditions, this was measured at 10.44 kPa. Comparing both simulation results with the test results demonstrated that Flowmaster was within 99% accuracy, an improvement on the in-house code which performed well at 93% accuracy.

The main benefit of using Flowmaster is speed of design iterations and accuracy, hence saving the number of prototypes required and test time. Designing systems right first time is crucial to Eminox in delivering high specification exhaust systems to their clients. This exhaust system is ATEX approved for use on vehicles that enter hazardous areas, for example oil refineries and chemical plants.



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