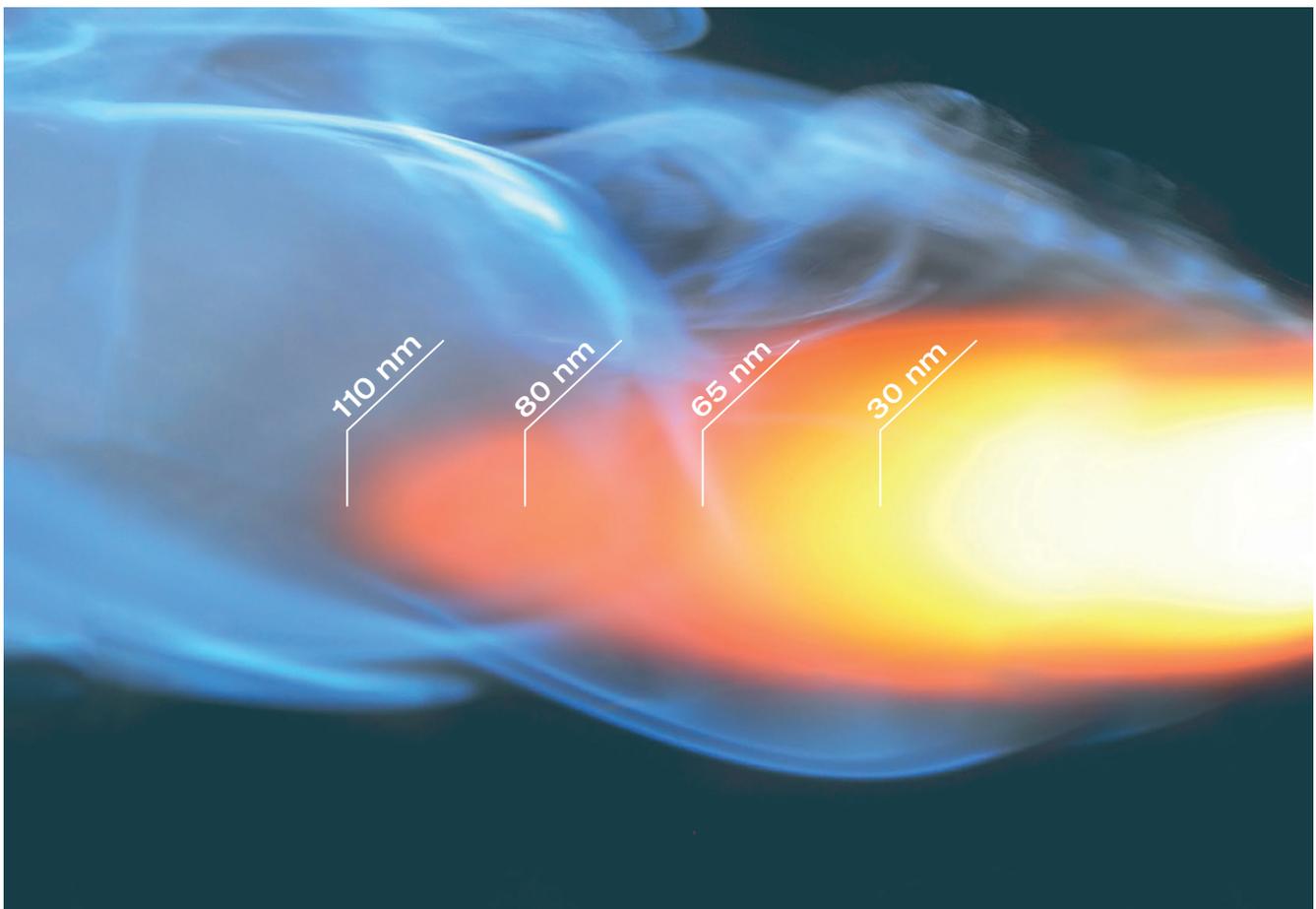


testo REXS – fully automatic soot generator for made to measure **particle generation.**



Amongst other things, the exhaust affair has focused public attention on the topic of particle filters for combustion engines. Particularly as the World Health Organization (WHO) had already classified diesel exhaust gases as carcinogenic in 2012. And the political world has also enacted some directives where limit values for particle emissions are determined. Industry is reacting to the problem and is researching reliable methods for filtering particles in exhaust gas. This means being able to accurately check and measure the efficacy of a particle filter is indispensable.

The testo REXS is a reproducible exhaust simulator which does not just generate nano-sized soot particles which are very similar to diesel soot. Its innovative technology also makes the checking of particle filters for combustion engines more accurate and more efficient. This enables reliable and cost-effective measurement of the efficacy of particle filters with the testo REXS – for the good of the environment and us all.



The testo REXS soot generator enables a significant increase in efficiency and cost saving in engine development and the calibration of engine test beds.

The challenge.

The task of the particle filter in diesel engines is to reduce the particles that are particularly harmful to the environment and people, which are produced in the exhaust gas of diesel vehicles during the combustion process. The conventional method of measuring the efficacy of soot particle filters is based on testing using a real combustion engine. However, the results generated in this way are expensive, unstable and prone to downtimes. In addition, the diesel soot particle generators which are established on the market need fossil fuel and are often restricted in terms of their use and operation due to their size.





The testo REXS is the perfect instrument for more precise, more efficient and more reliable particle generation.



The user-friendly software enables control and monitoring of the control parameters.

The solution.

In order to avoid problems of this kind, the testo REXS – Reproducible Exhaust Simulator – was developed. It is durable, robust and easy to operate with little effort needed. As a reproducible exhaust simulator, the testo REXS generates nano-sized soot particles which are very similar to diesel soot. However, unlike a diesel combustion engine, it generates an exhaust flow which is constant, stable and reproducible at any time. The testo REXS works with a gas burner, whose mass output can be varied to adjust the particle size at a given counter pressure. Its applications include quality control, testing of filter materials, DPF loading and CVS calibration. Its DPF filter loading times are the fastest on the market with particles of this size.

In comparison to exhaust gas measurement with test beds, combustion engines and other expensive parts, the testo REXS saves around 80% of operating costs and thus makes the measurement of the efficacy of exhaust particle filters particularly efficient. Furthermore, the testo REXS is exceptionally well-suited for certifying air inlet filters, cab filters and dust extraction devices.

However, the testo REXS also successfully meets challenges, such as the calibration of measuring instruments for engine test beds. Incorrect results and wrong conclusions arising from them are thus avoided – for the good of people and the environment.

The advantages at a glance.

The testo REXS (Reproducible Exhaust Simulator) supports manufacturers and testers of particle filters with all questions relating to the subject of separation efficiency measurement:

- Generates combustion soot particles with a similar particle size distribution to diesel emissions
- Stable, reproducible and constant particle size distribution with less than 5 % deviation
- Stable operation even when the absolute pressure changes due to increasing backpressure in clogged filters
- Easy to learn operation via indicator lights, display and user-friendly software
- Can also be used to calibrate test beds and to test and certify air inlet filters or dust extraction devices
- Minimal effect on soot volume concentration by pressure increase
- Very small particle sizes (e.g. GMD = 30 nm) possible without any further modification

The connections.

You only need propane, nitrogen, compressed air and single-phase electrical current to operate the testo REXS. The testo REXS is controlled by a micro-controller which monitors the gas pressures, gas flows, remote control signal, flame status and aerosol temperature and also drives the automatic ignition, display and indicator LEDs. In addition, the micro-controller regulates the change of operating point, start-up, gas flow regulator, valves and instrument switch-off. The testo REXS is operated using the two buttons on the front panel, Burner ON/OFF and Operating Point. Communication with the remote control software is achieved via a protocol through a serial EIA-232 interface.

The operating principle.

The testo REXS soot generator simulates the exhaust gas of a diesel combustion engine by generating soot with selectable particle sizes and concentrations. In order to do this, a gas burner generates a propane gas diffusion flame which is mixed with air. This involves converting propane (C_3H_8), nitrogen (N_2) and air into carbon monoxide (CO), carbon dioxide (CO_2), water vapour and soot nanoparticles.



More information.

For more information about testo REXS and answers to all your questions concerning exhaust gas particle measurement, please contact our experts on +49 7653 681-5062 or via sales-nanoparticle@testo.de