

TESTO 380

Fine particle measuring system

In combination with testo 330-2 LL, the innovative complete solution for solid fuels, oil and gas systems.

The constantly growing number of solid fuel systems leads to a further increase in the emission of fine particles. The new amendment to the 1. BImSchV prescribes fine particle measurement, presenting chimneysweeps, heating constructors and service technicians with new challenges. With the new fine particle measuring system testo 380, fine particles can for the first time be measured simply on site. The completely new measurement method developed by Testo enables easy monitoring and implementation of the fine particle limit values. Combustion systems can be optimized to minimum emissions with the system.

The „command centre“ of the testo 380 is the proven emission analyzer testo 330-2 LL. When you take it out of the case, you can as usual determine, among other things, flue gas, flue draught and pressure on gas and oil systems. In connection with the testo 380, the simultaneous measurement of O₂, CO and fine particles is possible for the first time.



KEY FEATURES

- Unrestricted TÜV test for the limit value levels 1/2 and according to VDI 4206 Sheet 2
- Parallel measurement of fine particles, O₂ and CO
- Graphic presentation of all measurement values in real time
- Especially economic in operation and maintenance
- Effortless handling and easy transport
- High-tech in a case: Measurement of all relevant values with only one probe

mg/m³

°C

HPA

O₂

CO/H₂

NO

ΔP



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OVERVIEW OF THE MEASUREMENT SYSTEM

The fine particle measuring system testo 380 consists of two system components: the fine particle analyzer testo 380 including fine particle probe, and the testo 330-2 LL as a command centre and a flue gas analyzer. Together, this system offers the highest possible level of compactness, ease of handling and precision in the measurement of solid fuel, oil and gas systems.

Fine particle case for easy transport of the fine particle measuring system. The entire measurement technology is contained in a convenient case with a weight of only 7.9 kg.

Fine particle probe

transforms a part of the raw gas into measurement gas. The contamination of the system is limited to a minimum, and a highly accurate measurement guaranteed at the same time. The innovative technology makes the fine particle probe compact and easy to use.

Compartment for instruction manual

The instruction manual is stored ready to hand in the lid.

Flue gas analyzer testo 330-2 LL

(from version 2006) The command centre of the system measures not only fine particles, but simultaneously also CO, O₂ and other flue gas parameters. The portable instrument can be removed from the case easily, and used for flue gas analysis on oil and gas systems.

Condensate trap and filters

The condensate trap and several filters prepare the raw gas for flue gas analysis in the testo 330-2 LL.

Storage compartment

for various materials such as the cleaning set.

Fine particle sensor Thanks to sophisticated technology, Testo has succeeded in making fine particle measurement easy. The fine particle values are displayed in real time, so that the effect of any action taken on the boiler can be traced directly.

Pre-heating stretch

ensures optimum gas temperature, and therefore an extremely accurate fine particle measurement.



Further storage space
e.g. for spare sensor module

Printer
(optionally available) for documentation on site

Mains unit
for testo 330-2 LL

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INNOVATIVE TECHNOLOGY

The fine particle probe

Everything you need for your professional fine particle measurement is contained in Testo's own development, the handy fine particle probe. The probe samples the raw gas directly from the flue gas flow and transports it to the testo 330-2 LL for flue gas analysis. Simultaneously, the raw gas is mixed with fresh air in the rotation diluter – creating the necessary measurement gas for the fine particle measurement. The fine particle probe is also responsible for the measurement of the flue gas temperature and the flue draught. The probe is equipped with a heating element which ensures a constant temperature of 120 °C, in order that the flue gas does not condense during the measurement. The probe can be quickly and effortlessly stored in the measurement box, and just as easily removed again. Other probes are not necessary for the measurement of fine particles.



The rotation diluter

In order to achieve an especially reliable fine particle measurement, the raw gas is passed through a rotation diluter made of technical ceramics. Thanks to the patented technology, the particle concentration is diluted with the help of a defined quantity of fresh air, so that the contamination of the gas paths and the entire measurement system is reduced to a minimum, and at the same time a precise fine particle measurement takes place. This means the system works without deterioration, cleaning takes place using conventional household cotton buds.

The fine particle sensor

The fine particle sensor measures the mass of the particles contained in the measurement gas. For this purpose, the measurement gas is passed on to the oscillating fine particle sensor through a jet. Depending on the mass of the particles deposited, the oscillation frequency changes, thus allowing the particle mass to be determined. Because this calculation can be carried out at very short intervals thanks to Testo technology*, it is possible to follow the measurement values in the display of the testo 330-2 LL in real time during the entire duration of the measurement. This way, no smoke input is ever missed, any change in the heating boiler and its effects are immediately visible, and the system can be adjusted especially quickly and efficiently.

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SPECIFICATIONS Specifications subject to change without notice**MEASURING RANGE, ACCURACY, RESOLUTION**

Measuring range	0 to 300 mg/m ³
Accuracy	acc. VDI 4206-2
Resolution	0.1 mg/m ³ (>5mg/m ³)
Memory	500.000 readings

OTHER INSTRUMENT INFORMATION

Storage and transport temperature	-20 to +50 °C
Operating temperature	+5 to +40 °C
Protection class	IP40
Weight	testo 380: 7.9 kg, testo 330-2 LL: 0.65 kg
Dimensions	475 x 360 x 190 mm
Housing material	ABS
Power supply	via internal mains unit: 100 V AC/0.45 A to 240 V AC/0.2 A (50 to 60 Hz)
Power consumption	max. 100 W

INFORMATION FINE PARTICLE PROBE

Probe length	270 mm
Probe shaft diameter	12 mm
Probe shaft material	Stainless steel 1.4301
Probe cable length	2.2 m
Integrated elements	Draught measurement, sampling, temperature measurement, probe heating, rotation diluter
Flue gas temperature	max. +500 °C
Probe shaft heating	to +120 °C
Rotation diluter	heated up to +80 °C
Status display	LED, shows warm-up phase and operational readiness



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