

MODEL KS-407-M

AUTOMATIC ISOKINETIC SAMPLER MEASURING CIRCUIT FOR DETERMINATION OF ALL FRACTIONED SOLID POLLUTANT CONTENTS OF EXHAUST GASES

■ ■ ■ ■ IN - STACK VERSION ■ ■ ■ ■



1. Purpose

The type **KS-407-M** automatic emission dust sampler measuring circuit and probe head have been developed for gravimetric determination of solid pollutants to be found in exhaust gases of motor vehicles and testing of motor oils. It is well-known that the quality of motor oils used in diesel oil fuelled engines greatly influences – favourably or adversely – the quantity and quality of the solid pollutants that can be found in the exhaust gas. Conventional measurement methods do not facilitate formal, micro-probe measurement by weight of solid particles existing in the exhaust gas.

With use of the **KS-407-M** measuring circuit the dust concentration of the solid pollutants existing in the exhaust gases of various motors can be determined to unique accuracy by weight – gravimetrically – and, with an adequate impactor amendment, the fraction of the solid particles as well. Controlling of the isokinetic sampling and documenting of the measurement data is performed by a notebook or a personal computer with use of Windows-based AR-IZO 407-M v4.3 software.



Figure 1.

SPECIAL FEATURES

- Measurement of total volume and average velocity of the gas exhausting from the engine, simultaneously with the sampling.
- Quickly replaceable in-stack filter, suitable for serial and continuously intermittent measurement of motor cycles.
- Automatic isokinetic measurement control with Windows-based AR-IZO 407-M v4.3 software.
- Small size – $\varnothing 28 \times 120$ [mm] – in stack probe head, replaceable for cascade impactor.
- Extremely high dust storing capacity.
- The probe head and the measuring circuit comply with the guiding principles of the MSZ ISO 9096 standards.

2. Technical description

The construction of the measuring circuit is shown in **Figure 1**. The total quantity of the gas leaving the exhaust port of the motor vehicle is flowing through a rectifying and low-drag pipe section of adequate length and a Venturi meter into the measuring cell. The solid material sample taken isokinetically, at velocity practically identical to that of the gas, is depositing in a thimble filter, shown in **Figure 2**.



Figure 2.

3. Technical data

- Related volume flow rate dependent on t_1 : 1,0 [m³/h]–3,6 [m³/h]
- Maximum temperature with teflon (PTFE) gasket: 220 [°C]
- Nozzle: $\varnothing 4,5; 5,6; 7,6; 10,7; 14; 17$ [mm]
- Backup thimble filter: $\varnothing 10 \times 110$ [mm]
- Type of the measuring and control unit: KS-400-CV.15/8
- Power supply: 230 [V], 50 [Hz]
- Volume flow rate measuring accuracy: ± 2 [%]
- Overall dimensions: 540x400x170 [mm]
- Mass: 8,2 [kg]