

# SHC500 GRAVIMAT

Mobile measurement system for  
gravimetric dust concentration measurement



**SICK**  
Sensor Intelligence.

# SHC500 Gravimat – Simple construction, precise measurement, fast results

## AREAS OF APPLICATION

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- Calibration of continuous dust measurement systems
- Performance measurements at filter plants
- Compliance measurements
- Flow and temperature profile measurements, determination of the flow direction (swirl)

### DUST COLLECTOR

- Version 1:  
LC collectors for low  
(0.1 ... 200 mg/m<sup>3</sup>)
- Version 2:  
HC collectors for high  
(50 ... 50,000 mg/m<sup>3</sup>)  
dust concentrations
- The dust collectors are fitted with suitable round filters before measurements and form a sealed unit during the complete measuring process including weighing procedures.

### FILTER HEAD PROBE GS5

- Probe head with integrated support for the dust collector, pressure measuring openings for isokinetic control of the extraction process, and a PT100 sensor for precise measurement of the exhaust gas temperature
- Stainless steel probe shaft
- Multi-channel hose with integrated impulse lines for transmission of the pressure signals to the pressure sensors in the electronic unit

### AUTOMATIC UNIT

Flight case with:

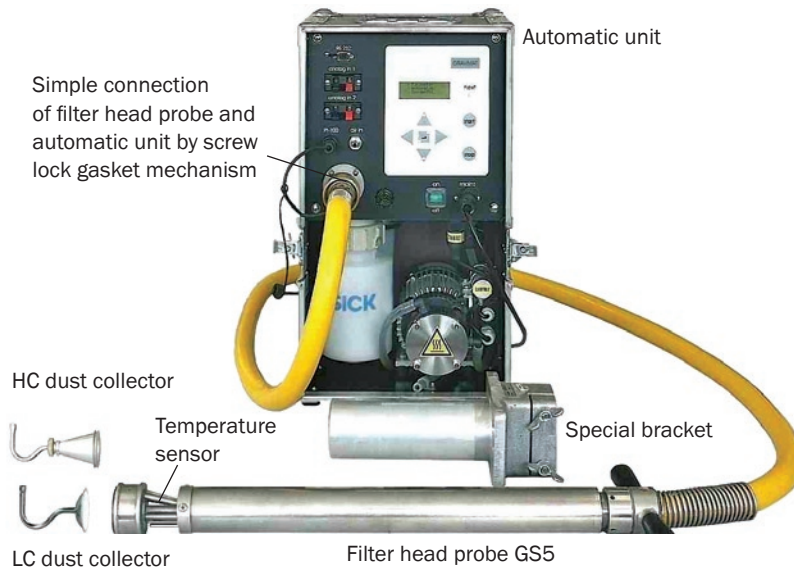
- Electronic unit
- 6 Pressure sensors
- Power supply
- Suction pump
- Control valve, stop valve
- Condensate separator

## PERFORMANCE FEATURES

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- No dust losses during filter handling, patented sampling system
- Highest measuring accuracy especially at low level dust concentrations
- Automatic data recording and system control
- Isokinetic control in real time
- Automatic storage and evaluation of the measuring values
- Measurement results immediately available after sampling
- Automatic measurement of spin angles
- Compact design, low number of components
- Only one person for transport and handling

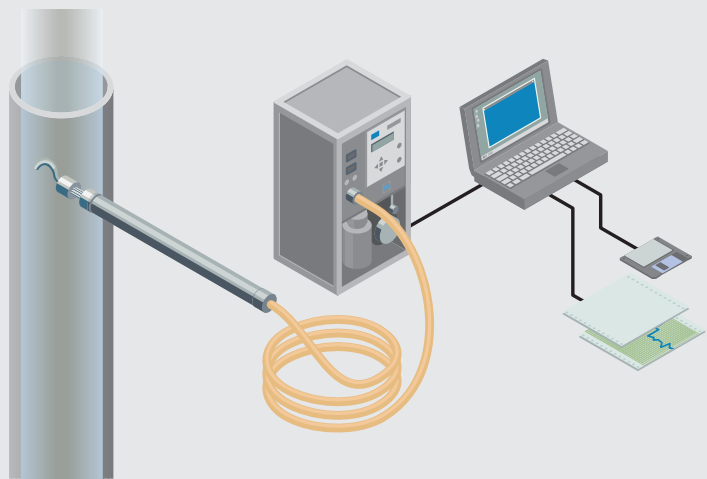
## GRAVIMAT SYSTEM OVERVIEW



## MEASURING PRINCIPLE

A partial volume flow, regulated with a control valve by adding false air isokinetically based on the recorded differential pressure, is extracted from the duct by using a dust collector with filter, a filter head probe and a condensate separator. Gas velocity as well as gas flow angle to the probe can be calculated from these values. Temperature is recorded by an integrated PT100 sensor within the probe head.

A cut-off valve prevents a back flow to the dust collector before and after sampling. The extracted partial volume flow is measured using flow measurement with restriction.



Technical Data		SHC500 GRAVIMAT
<b>Measuring parameters</b>		
Measuring components	Dust concentration with gravimetric comparison measurement	
Measuring ranges	<ul style="list-style-type: none"> <li>• 0.1 ... 200 mg/m<sup>3</sup> with dust collector LC</li> <li>• 50 ... 50,000 g/m<sup>3</sup> with dust collector HC</li> </ul>	
Accuracy	± 1 % of maximum throughput	
<b>Measuring conditions</b>		
Medium temperature	<ul style="list-style-type: none"> <li>• Standard: 0 ... 250 °C (32 ... 480 °F)</li> <li>• With air cooling: 0 ... 400 °C (32 ... 700 °F)</li> <li>• Special version: 0 ... 600 °C (32 ... 1,110 °F)</li> </ul>	
Internal duct pressure	-70 ... +70 hPa (-1.0 ... 1.0 psi)	
Gas velocity	2 ... 48 m/s (6.6 ... 157.5 ft/sec)	
<b>Ambient conditions</b>		
Umgebungstemperatur	-10 ... +50 °C	
<b>Interfaces</b>		
Interface	RS232: 9600, N, 8, 1	
<b>General information</b>		
System components	<ul style="list-style-type: none"> <li>• Automatic unit SHC-AE501/502</li> <li>• Filter head probe GS5</li> <li>• Dust collector LC oder</li> <li>• Dust collector HC</li> </ul>	
Operation	• Via LC-Display and Function key pad; Version SHC502 with operational software	
<b>Approvals</b>		
Compliances	<ul style="list-style-type: none"> <li>• EN 13284-1</li> <li>• US-EPA Method 17</li> </ul>	