

SCPS

Gas analysis under very harsh conditions, directly on rotary kilns

Modular system solution from a single source

- Prevention of system down-times due to timely detection of problems in the process
- Uniformly high product quality thanks to process control
- Lower energy costs due to an optimized combustion process
- Rugged, proven technology for minimal maintenance
- High system availability due to harmonized components from a single source
- Quick and capable assistance thanks to remote access and an experienced service team



The modular system solution from a single source

Cement production is a process that consumes a great deal of resources and energy. Due to high competitive pressure, saving energy and increasing production efficiency are necessities. This is why more and more manufacturers are using alternative source materials and fuels. The use of inhomogeneous and often unclean fuels usually results in an increased concentration of undesirable sulfuric and chlorine compounds in the process.

The SCPS state-of-the-art process gas analyzer system provides reliable information on process quality, which helps in detecting problems early on – such as incomplete combustion, cyclone and kiln blocks as well as chlorine concentrations harmful to the process – and helps to prevent these problems.



Hot/wet extractive or cold/dry extractive measurement technology?

The cold/dry extractive process gas analysis has been the industrial standard for decades. The process is well-suited to measure the components relevant to the combustion process, NO_x , CO , CO_2 and O_2 (for gas firing, CH_4 as well).

Increasing use of alternative fuels means that the demand for measuring the components SO_2 , HCl and NH_3 is growing as well, as these occur in greater quantities in the combustion of these fuels. However, there are limitations when measuring these using cold/dry extractive analysis because they are highly water-soluble. On the one hand, condensation in the gas cooler causes the components to be extracted ("washed out") from the gas and, on the other hand, it causes acids to form. As these acids are harmful to the analyzer system, SO_2 is often intentionally removed by the addition of hydrogen peroxide

Precise process gas analysis

More precise process gas analysis means better optimization for combustion processes and quality assurance. SCPS offers analysis options for any requirements.

The right process optimization analysis

The versatile SCPS analyzer system allows you to give energy efficiency, product quality and system availability a reliable, permanent boost.

The result: You gain competitive advantages.

The hot/wet extractive process gas analysis offers an advantage in that, here, high temperatures are present throughout. SO_2 , HCl and NH_3 do not form acidic condensate and can be measured without problems.

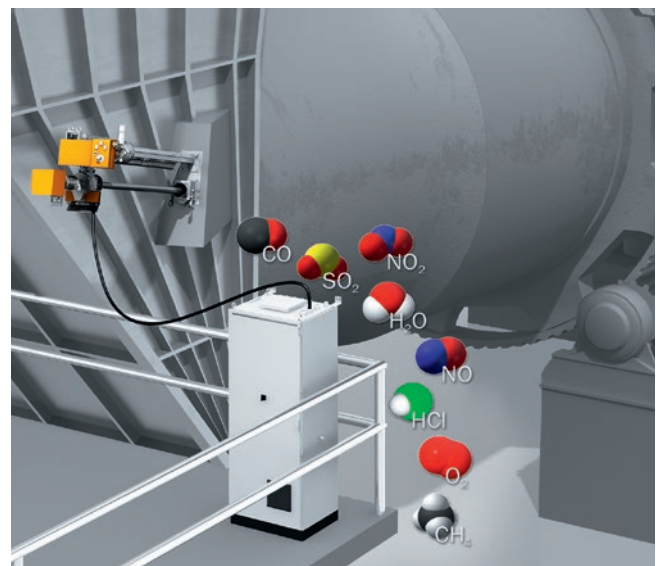
As a result, which analytical process should be used mostly depends on the fuel. Endress+Hauser offers reliable solutions for both of these analytical processes. Our modular SCPS analyzer system solution covers all variants from a single source and provides customers with optimal solutions for their individual requirements.

Rugged probes, cunning technology

The combination of highly resistant material and technology that has been optimized for its application allows measurements to be taken with reliable precision—even in tougher environments.

Long downtimes in harsh environments

The effective cooling and cleaning technology of the SCPS allows you to cut down on maintenance efforts and minimize unplanned downtimes, saving you money.



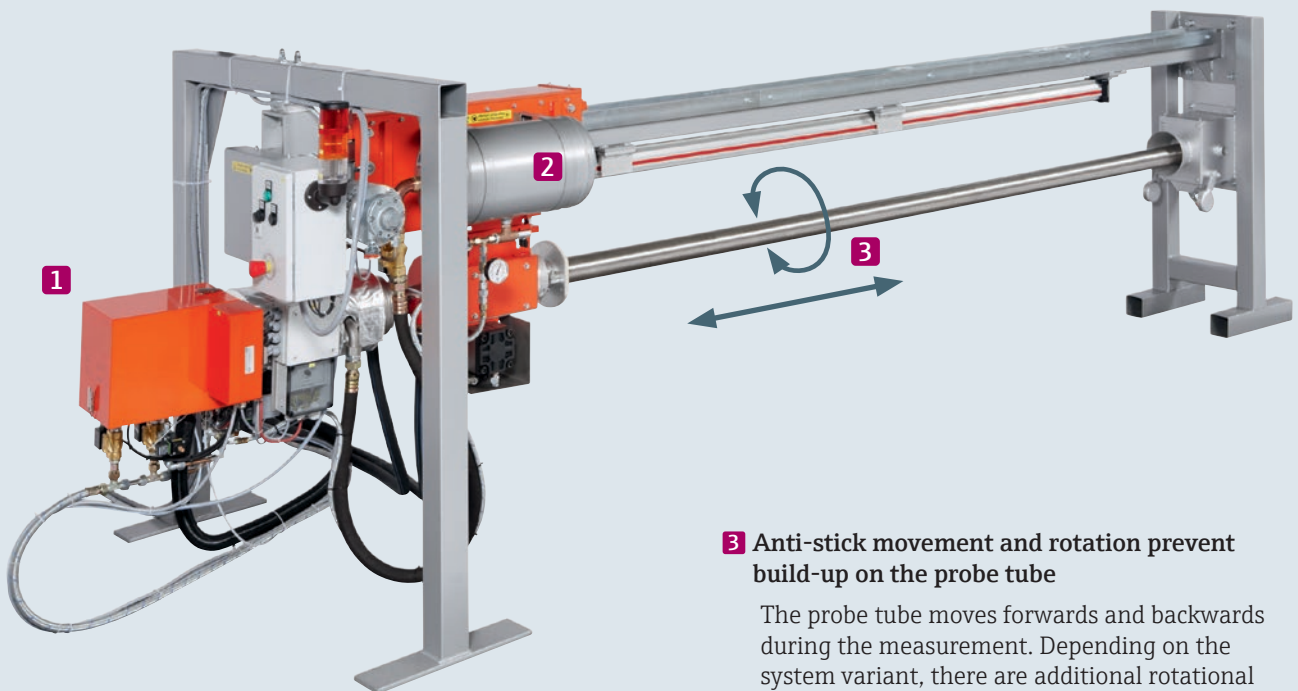
Advantages at a glance

1 Maximum filter service life thanks to 2-stage filter back-purging

The filter back-purging with compressed air cleans both the filter itself and the filter space thoroughly. This prevents the blown-out dust from settling again in the filter, significantly increasing the service life of the filter.

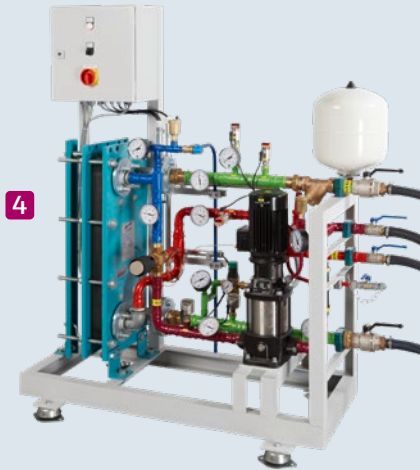
2 Reduced maintenance effort at the sampling probe thanks to proven shock blower

Based on the analyzer system variant, the integrated shock blower cleans the proven probe tube efficiently with compressed air at regular intervals. In contrast to mechanical cleaning processes, no cleaning tools can get stuck.



3 Anti-stick movement and rotation prevent build-up on the probe tube

The probe tube moves forwards and backwards during the measurement. Depending on the system variant, there are additional rotational movements. This prevents material accumulation on the probe tube.



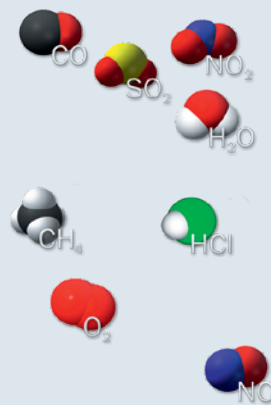
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4 Effective probe cooling for high-temperature usage

The effective cooling protects the sampling probe at temperatures up to 1,400 °C. Depending on the system variant, water or oil is used as the coolant. For recooling, the cooling unit can be connected to the plant's internal water cooling system. As an alternative, recooling by ventilating with ambient air is possible.



5



5 Process control using accurate gas analysis

Determining the concentration of the gas components relevant to combustion such as CO, NO_x, CO₂, CH₄ and O₂. To ensure product quality and plant availability, our for many years proven hot/wet extractive measurement technology offers the option of measuring the components SO₂, HCl and NH₃. Depending on the customer requirement, the system can measure different gas components.

SCPS: Gas analysis under very harsh conditions, directly on rotary kilns



Product Description

The SCPS process gas analyzer system is used for analyzing gas concentrations directly on rotary kilns. Rugged sample probes, effective cleaning mechanisms combined with hot or cold extractive analyzer systems and flexible remote maintenance. Endress+Hauser is the only manufacturer that delivers the whole portfolio of products from a single source. The analyzers are configured to measure

not only the important combustion parameters O_2 , CO, CO_2 , NO and, if applicable, CH_4 , but also process parameters such as SO_2 , HCl and NH_3 . Thanks to its minimal maintenance, very high availability, and accurate measured values, the SCPS system really shines, especially when it comes to combustion with high levels of sulfur or chlorine.

At a glance

- Simultaneous measurement of all relevant gas component such as O_2 , CO, CO_2 , NO_x , CH_4 , SO_2 , HCl, NH_3
- Rugged and cooled sample probes, can be used up to 1,400 °C (2,550 °F) and 2,000 g/m³ dust

- Up to 98% availability of the entire analyzer system
- Quick service thanks to remote maintenance

Your benefits

- Prevention of system downtimes due to timely detection of problems in the process
- Uniformly high product quality thanks to process control
- Lower energy costs due to an optimized combustion process
- Rugged and proven technology for minimal maintenance work

- High system availability due to harmonized components from a single source
- Quick and capable assistance thanks to remote access and an experienced service team that is active all over the world

Fields of application

- Rotary kilns in cement plants



More Information online

For more information, enter the link or scan the QR code to get direct access to technical data, operating instructions, software, application examples, and much more.

www.endress.com/scps



Technical data

The precise device specifications and product performance data may vary and are dependent on the respective application and customer specifications.

SCPS process gas analyzer system (PGA)

System	SCPS1100	SCPS3100	SCPS3300
Gas extraction components	SCP1000	SCP3000	SCP3000
Analyzer system	MKAS	MKAS	MCS300P HW
Measured components	CO, CO ₂ , NO _x , SO ₂ , CH ₄ , O ₂	CO, CO ₂ , NO _x , SO ₂ , CH ₄ , O ₂	CO, CO ₂ , NO _x , SO ₂ , CH ₄ , O ₂ , HCl, NH ₃
Max. number of measured components	Depending on integrated analyzer	–	–
Measurement technology	cold-extracting	cold-extracting	heat-extracting
Probe tube cooling	oil-cooled	water-cooled	
Probe cleaning	Backwashing	Backwashing with shock blower	Backwashing with shock blower
Rotation drive	–	✓	✓
Measuring ranges	Measuring ranges depend on integrated analyzer and application		More than 60 measuring components available, up to 6 components simultaneously
Process temperature	≤ +1,400 °C (2,550 °F)		
Ambient temperature	– 20 °C ... +55 °C (–4 °F ... 131 °F)		
Dust load	≤ 2,000 g/m ³		
Conformities	CE	EN 60204-1	EN 60204-1
Electrical safety	CE	CE	CE
Enclosure rating	IP 54	IP 54	IP 54
Power supply			
Voltage	3-phase: 400 V, 50 Hz		
Power consumption	approx. 3.5 kW		
Operation	Via Siemens or Allen-Bradley control unit Via on-site operating unit		
Dimensions [mm]	1,000 x 760 x 210		
Probe unit	4,800 mm x 1,050 mm x 1,430 mm (189" x 41.3" x 56.3")		
On-site control cabinet	600 x 600 x 300 (23.6" x 23.6" x 11.8")		
Cooling unit	1,100 x 2,100 x 800 (43.3" x 82.7" x 31.5")		
Auxiliaries	Instrument air: 6 bar (87 psi); dust, oil and water free		

Order Information

Our regional sales organization will be glad to advise you on which device configuration is best for you.

All continuous emission monitoring systems (CEMS), process gas analyzer systems (PGA) and liquid analysis systems can be ordered combined and on request for all shelter types.

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