

PROCESS INSIGHTS

- staying in compliance and optimising production



TECHNOLOGY LEADERSHIP

Gas analysis and emission monitoring

FLSmidth leads the way in gas analysis and in environmental protection, in part through a dedicated commitment to R&D that ensures cutting-edge technology and an exceptional product portfolio. Our APC technology includes a wide range of technologies to reduce particulate matter and gaseous emissions from cement plants.

AIRLOQ is part of APC and is specialised in gas analysis and emission monitoring. Our product range is used for process control, productivity improvements, filter protection, measuring of process conditions and fire detection in the coal mill department as well as stack emission monitoring in connection with any pyro process. We have more than 40 years of experience in combining process knowledge from the cement and mining industries with practical solutions of gas analysis. We supply gas analysis for various applications - such as kiln inlet, preheater, coal mill/silo and stack emission - both on cement plants and in adjacent industries.

APC and AIRLOQ towards Mission-Zero

When working together, we can solve a wide range of customer needs both within gas analysis and environmental protection and thus ensure a better, united and optimised solution. With our Mission-Zero 2030 sustainability goals, we've pledged to help bring emissions **down to zero by 2030**. We are committed to utilising existing technologies and finding new ways to make this happen. We're excited about the potential that lies ahead.

Greater understanding of your process leads to better management

Monitoring of gas analysis components is a key first step in reducing your environmental footprint. Exhaust gases tell a story about what's going in your process and the implications that has on the whole system. With the right data to hand, you can adjust your process to minimise emissions and increase efficiency and safety. Small changes can have a big impact – both on the planet and on your bottom line. That's how a Gas analysis solution can improve your performance.

CONTINUOUS EMISSION MONITORING

GASloq: a complete gas analysis system, with expertise built in

Modern plants have a broad range of analysis needs. Our GASloq system is equipped with the tools you need to sample and analyse all this information and turn it into data that will help you improve efficiency and sustainability.

If you have your own analyser room, the GASloq 1200 system can be installed there. Otherwise, the GASloq CUBE is a Plug and Play solution that provides the perfect housing for your gas analysis system, giving you room to work and optimum temperature control for your analysis equipment.

Whether in or out of the GASloq CUBE, every GASloq system comes complete with:

- Gas sampling system based on extractive gas sampling
- Gas conditioning individually designed for each application
- Gas analysis chosen from the best available technologies
- Control through the HMI matched to your plant control system

The GASloq system is designed to adapt to your needs. It measures CO, NOx, SO₂ and O₂ as standard. But if you want to measure other components, such as H₂O, NH₃ or HCl, or simply require a CO and O₂ CEMS system we will design your emission solution accordingly.

Robust, reliable and accurate. An analyser you can depend on

The ACF5000 is a multi-component FTIR emissions monitoring system from ABB, and it is one of the best analysers on the market.

The ACF5000 delivers on both our priorities, providing high levels of accuracy and reliability through FTIR technology. The ACF5000 can perform continuous, quantitative and selective measurement of up to 15 components as standard, including: HCl, HF, H2O, CO, CO₂, SO₂, NO, NO₂, CH₄, NH₃, N₂O, H₂CO, O₂ and VOC. Further components can be added on request. The ABB FTIR Analyser is certified according to European Norm 15267 and EN14181 and also complies with US EPA 40 CFR 60 and 40 CFR 75, making it suitable for emissions monitoring worldwide.

Mercury measurement made easy

Most mercury regulations are very strict, obliging you to constantly monitor mercury emissions levels to ensure you aren't exceeding compliance limits. Fortunately, the HM1400-TRX2 from DURAG is designed to provide reliable measurement in the lowest certified range and to detect both elemental and oxidised mercury.

To give you peace of mind that your readings are accurate, the internal calibration gas generator gives you an automated reference point through which you can keep an eye on drift and conversion efficiency. Meanwhile, the rugged design ensures long-term reliability and minimal maintenance. When it is necessary to replace parts, it is a simple enough task – and in some instances, it can even be done during operation.



GASLOQ 1200



ACF5000



HM1400-TRX2

DUST, FLOW AND PROCESS MONITORING

Your application is unique – that's why we think it makes sense to choose from a wide range of gas analysis solutions. Over the years, we've built up a lot of experience in matching the best instruments with every application.

Measuring dust

If you're monitoring gaseous emissions, you will likely also be interested in particulates. How much dust is coming out of your stack? What are the characteristics of that dust? Where is it coming from? This is where dust meters come in. Usually supplied as part of a package with the rest of your emissions monitoring solutions, they form an important part of your total environmental picture.

We don't make dust monitors, which leaves us free to choose the most suitable instrument for your application, taking into account the physical characteristics of your process and the degree of accuracy you require. We primarily use dust and flow monitors from Durag, whose dust monitoring instruments are reliable, robust, easy to operate and to maintain, e.g. our most popular dust monitor, the D-R 808.

D-R 808 Dust-monitor

The D-R 808 works according to the principle of forward scattering. and is used for monitoring small to medium dust concentrations with a certified range of O- 7.5 mg/m3, this device is for one-side installation without alignment.

- Certified for official emission monitoring
- Space-saving and easy installation
- Low, easy maintenance
- Reliable emissions monitoring thanks to automatic control functions

Precise flow measurement

Knowing your gas volume and gas velocity is key to understanding your emissions data. It gives your gas analysis context, enabling you to make sense of your records and pass on accurate data to the relevant local authorities. Our experience has taught us that the best solution is almost always a Durag flow monitor. One of them is the D-FL 100 which operates according to the differential pressure principle used at high temperatures or high pressure and both for large or small stack cross-sections. Another is the D-FL 220 which is is a measuring system for ultra-sonic measurement of flow and volume flow, especially for wet and aggressive gases.

Complementary emission products

In some cases, regulation requires additional measurement to the emission package, and thus we also provide certified in-situ instruments, such as the Endura AZ20 and the NEO Lasergas Monitor.

Endura AZ20

The AZ20 from ABB provides in situ measurement for optimum combustion control and emissions monitoring. It benefits from a robust, long-life probe that can withstand process temperatures up to 800° C, as well as easy configuration and consistent, long-term accuracy.

NEO Lasergas Monitor

The NEO Lasergas is typically used to measure HCl, HF, NH₂ or H₂O. It is designed for in-situ measurement in stacks, ducts or reactors, though it is also possible to use it for extractive gas sampling. This analyser uses Tuneable Laser Absorption Spectroscopy – i.e. a non-contact method, which significantly reduces the maintenance requirements. Measurements are fast and accurate, giving you optimum results.



D-R 808 DUST MONITOR



AZ20 COMBUSTION OXYGEN ANALYSER



NEO LASERGAS MONITOR

A complete solution for safeguarding plant and personnel

Failing to correctly monitor dangerous conditions will endanger plant employees and may damage or destroy costly machinery resulting in long-term production shutdown.

Safety and interlocking gas analysis

Safety is a critical component in any pyro process. Reliable monitoring of process gases protects filter installations against hazardous build-ups of explosive gases. True uninterrupted measurement of these gases ensures there are no safety blind spots that can endanger plant personnel and equipment.

With 40-plus years' experience designing market-leading gas analysis solutions for the cement, minerals and process industries, FLSmidth has designed a simple and robust double probe system – DDOP: Double Dry nOn-cooled Probe – which enables true continuous gas analysis without any blind periods, thereby optimising plant safety.

Benefits

DDOP is specifically designed and used for interlocking kiln burners, fans and electrostatic precipitators. The system measures explosive gases, such as CO and CH₄, and provides operational staff with early warnings of explosive gas developments, allowing for fast correction of the burning balance.

DDOP is designed for easy, trouble-free installation, operation and maintenance in the harsh, dusty and very demanding cement plant settings and in other similar applications.

How it works

The DDOP safety and interlocking gas analysis system is designed to operate at high dust concentrations in the preheater exit. The complete filter protection system consists of a double dry non-cooled probe, a probe cleaning panel, heated sample lines and a GASloqTM gas conditioning unit.

DDOP is non-cooled and consists of two separate filter probe tubes. The double probe configuration allows sampling from one probe while the other is cleaned, resulting in true continuous gas analysis and protection from CO/CH4 peaks. As the gas is extracted from the process, a 180°C heated sample line prevents condensation from occurring before the gas reaches the GASloq gas conditioning unit.



The GASloq system is equipped with two parallel sampling systems that draw gas from each of the two probes. It sends the gas to one common set of analyser units at high speed. During the cleaning of one probe, the other probe continues the analysis unaffected.

The gas conditioning equipment can be supplied in a secure GASloq CUBE site shelter, if required.

Many plants require safety and interlocking systems to be SIL2 approved. If you need this level of protection we can deliver to these requirements.

IF YOU NEED US, CALL – NO MATTER WHERE YOU ARE

Emission monitoring is at the heart of a plant's compliance programmes. Regular maintenance of your analysis systems benefits both the environment and your business.

We select and design our systems for optimum reliability and performance – but all equipment needs to be looked after if it is to continue performing at the high standards you expect. Regular maintenance of your gas analysis system helps you reduce system downtime and optimise plant performance.

To keep your gas analysis system running smoothly, we provide expert repair and maintenance services, including:

- Commissioning the system
- Preventative maintenance
- Service agreements 24/7 coverage or a yearly visit
- Service hotline and call-outs
- Spare parts
- Training
- Online support and remote troubleshooting
- Consultancy
- Complaint resolution

Flexible service agreements

Service contracts save you money and improve the predictability of maintenance. For example, our service agreement, PlantLine[™], provides a range of standardised services, while still offering flexibility. And we also offer online support, enabling better up-time, preventative maintenance, troubleshooting and program updates to be handled remotely – with no delay.

Remote troubleshooting

LiveConnect is our remote preventive service and support offering, which connects over the plant network or 3G. LiveConnect allows preventive maintenance and potential program updates to be handled remotely without site visits. It also supports on-line remote troubleshooting for the local maintenance organization. The LiveConnect setup will not jeopardize plant network safety or bridge firewalls and is fully controlled by the plant, enabling easy on/off operation where applicable.

Fast turnaround on repairs

You can't afford to wait for equipment to be fixed. Our in-house specialised service workshop delivers fast response times and repairs; we promise that we won't take any longer than 12 working days to repair equipment after we have received it.

We carry a full range of spares for major brands and offer calibration, linearisation functions and repair of analysis instruments. We never compromise on quality or safety, and we repair and support the most common gas analyser brands, including:

- ABB®
- Siemens®
- Emerson®/Rosemount®
- Durag®
- NEO™

Onsite assistance

Whether you have a problem already – or you are thinking ahead – we can visit your site to carry out troubleshooting and preventive maintenance. Our rolling team of service technicians are fully trained to service the most complex instruments. We are ready to help with emergency assistance, commissioning of new installations, preventive servicing and AST/QAL2 function tests. Upon request, we also offer 24-hour service agreements.

Spare parts

Spare parts are available from our convenient webshop <u>https://airloq.flsmidth.com/shop</u>. Just enter the item number of the part you need to check the price and availability. We stock all relevant spare parts and part numbers going back 10 years. We continuously update our stocks to ensure that all new products and spare parts are available.

All in all, we offer a full range of world-class services for your gas analysis and emissions monitoring equipment.



YOUR GLOBAL PARTNER

For more than 135 years FLSmidth has sold equipment, plants and services to the cement and mining industries.

Today we sell productivity.

Through advanced technology and unique process knowledge, our 12,000 employees across more than 50 countries provide sustainable productivity enhancement to our customers.

We seek to increase our customers' output and decrease their total cost of ownership.



□ Supercentre □ Project and technology centre ■ Production ■ Sales and services

FLSMDTH CENENT

www.flsmidth-cement.com

Copyright © 2024 FLSmidth Cement. All Rights Reserved. FLSmidth is a (registered) trademark of FLSmidth A/S, and FLSmidth Cement is authorized to use the trademark under a license agreement. This brochure makes no offers, representations or warranties (express or implied), and information and data contained in this brochure are for general reference only and may change at any time.

