

The Benefits of Using MCERTS Approved Filter Leak CEMS

Filter leak CEMS (continuous Emission Monitors) are used on industrial processes to continuously monitor the condition of bagfilter arrestment plant to satisfy both regulatory and process control requirements. A new European standard EN-15859 sets important performance criteria for the operation and approval of Filter leak monitors in support of quality assurance goals. The UK MCERTS scheme for CEMS has recently adopted this standard in support of UK monitoring requirements.

Role of Filter Leak CEMS

Continuous monitoring has been at the heart of the regulatory approach in the UK for the past 20 years, since as well as ensuring emission limits are met, it provides the process operator the data to ensure that pollution abatement equipment is working properly, and provide immediate alarms if there is a plant malfunction.

With the widespread adoption of bagfilter arrestment plant to control particulate emissions from industrial processes, regulators

have adapted their continuous monitoring requirements to reflect Best Available Technique (BAT) in smaller emission points and required the installation of 'filter leak CEMS (Continuous Emission Monitors)' as an alternative to 'Particulate CEMS' or filter dust CEMS. These instruments provide visibility to trends and changes in the emissions from a bagfilter associated with wearing or torn bags, provide feedback on the correct operation of the plant and alarms on monitoring a leak.

For Part B processes regulated by Local Authorities the terminology used for 'filter leak monitors' is 'indicative monitoring of particulate'. For Part A processes regulated by the Environment Agency or in other European countries the term 'qualitative particulate monitor' or 'Filter leak monitor' is sometimes used as an alternative to the term 'Filter Leak CEM'.

Quality and MCERTS Approvals

Quality plays an increasing role in the field of emission measurement as regulators place increasing importance on the 'self monitoring' of emissions by process operators and need to ensure that monitoring is fit for purpose, reliable and sufficiently accurate for its intended purpose. This is just as relevant to Filter Leak CEMS as other types of environmental measurements. In the UK the MCERTS scheme was introduced by the Environment Agency in the late 1990's to support this drive towards quality. The MCERTS scheme now extends to cover a wide range of environmental measurements including continuous emission monitors (CEMS) on which a type approval or instrument certification scheme was originally established.

To receive an MCERTS approval, instruments are submitted for extensive testing in a real industrial application with supplementary testing conducted in a laboratory and must pass a range of performance criteria which are published in the MCERTS performance standard. Critically these standards require accurate and reliable operation, but also internal Quality Assurance features within the CEM to warn the plant operator if there is any malfunction of the instrument after initial installation and set up. Such malfunction might be caused by instrument component failure or drift but in reality is more likely to come from contamination due to the aggressive stack environments in which these instruments are installed. In any case the requirement for Quality Assurance features such as internal zero and reference checks supports the regulatory requirement for industrial self monitoring in which all parties can rely on the data produced.

Recent changes in standards and approvals

Reflecting that technology and regulatory demands move forward as new standards are published, the MCERTS performance standard for CEMS is regularly updated and in 2009 version 3.1 was published. Version 3.1 of the MCERTS performance standard now almost mirrors the relevant European standards for the approval and performance of CEMS (Version 3.2 is expected in 2010 to ensure 100% consistency). As well as reflecting EN-15267-3 (the European standard for approval of CEMS according to QAL1 as required in Incineration and Large Combustion plant according to the Directives), MCERTS has also adopted a new standard EN-15859. This latter standard sets performance criteria for the approval of two types of Filter CEMS: Filter dust CEMS and Filter leak monitors introducing



- Requirements for quality assurance features including automatic internal zero and reference checks complemented with manual inspection regimes for components not challenged by the checks
- Criteria for the accuracy of measurement (correlation to concentration for filter dust CEMS and ability to monitor leak conditions without false alarms for filter leak monitors)
- Requirements for long term reliability (without maintenance) and criteria on long term stability

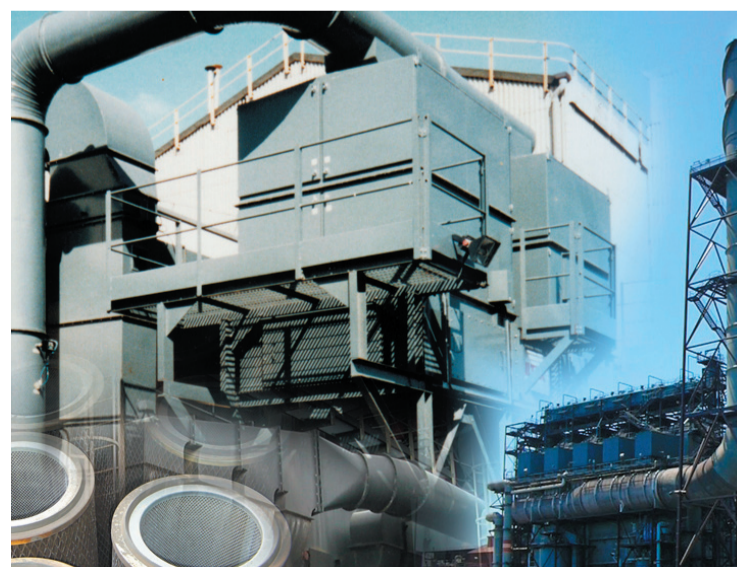
These requirements are adopted within the latest MCERTS performance standards. Within the MCERTS scheme instruments are classified as either Class 2 (filter dust CEMS) and Class 3 (filterLeak CEMS). The latter class 3 device (Filter leak CEM) has specific relevance to the regulatory demands for 'indicative particulate monitors and bag leak monitors'. There are already a number of instruments which have been approved against the new European standard EN-15859.

The other type of filter CEMS (class 2 filter dust CEMS) are approved as capable of being calibrated in mg/m^3 , and applicable to industrial processes where a concentration measurement in mg/m^3 is required but it is not necessary to apply QAL1 (class1) type instruments to satisfy EN-14181.

Use of approved Filter Leak CEMS

Industrial plant operators in the UK are turning to the installation and operation of approved Filter Leak CEMS on particulate arrestment plant for a number of reasons

- First the instruments have validated long term performance for leak monitoring of bagfilters and other arrestment plant
- Secondly the instruments have the internal quality assurance features



required to warn should the instrument fail.

- Thirdly by using approved instruments the plant operator can obtain a higher score in its 3 yearly Operator Monitoring Assessment (OMA) audit
- Finally and most importantly the plant operator can ensure that smaller bagfilter type arrestment plant (which do not require a particulate CEM) are appropriately monitored and all plant leaks and deteriorations are rapidly and reliably monitored.

Filter leak CEMSs help minimise emissions from industrial plant by providing rapid indication of arrestment plant leak conditions and as such play an increasing role in the 'monitoring toolbox' available to regulators and plant operators. Monitoring standards (EN-15859) and approvals schemes (MCERTS) support these requirements and ensure instruments are 'fit for purpose' and have appropriate quality assurance features.

The Source Testing Association (STA) was established in 1995 and has

a corporate membership of over 200 companies from process operators, regulators, equipment suppliers and test laboratories. The STA is a non-profit making organisation.

STA officers sit on all the UK, European and International working groups responsible for stationary source sampling and had lot of responsibility in development of this standard.

The STA is committed to the advancement of the science and practice of emission monitoring and to develop and maintain a high quality of service to customers and has been involved with the standards development process since its inception.



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