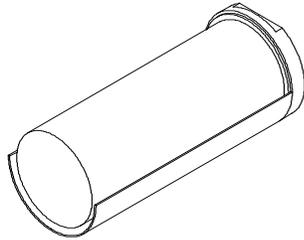


Yokogawa fly ash filters:



M1200DB-06 fly ash filter
Specifications:

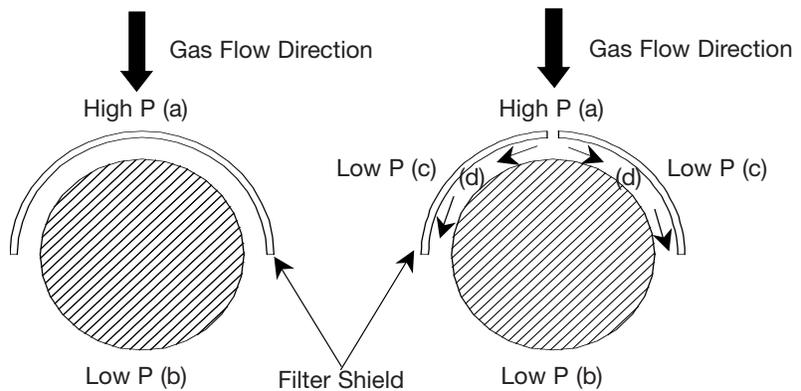
Filter Material:	Hastaloy X
Base material:	SSTL 316
Max OD:	7.2 cm (2.83 in)
Filter surface Area:	345 sq-cm (54 sq-in)
Max opera. Temp:	700C (1292 F)
Pore Size:	10 micron



M1234SE-A self cleaning - fly ash filter
Specifications:

Filter Material:	Hastaloy X
Base material:	SSTL 316
Max OD:	6.35cm (2.5 in)
Filter surface Area:	296 sq-cm (46 sq-in)
Max opera. Temp:	700C (1292 F)
Pore Size:	10 micron

How the filter works:



Standard filter performance:

- a) High pressure area caused by bluff body in gas flow
- b) Low-pressure area cause by bluff body. Typical area ash draft cone.

Self-Cleaning Action:

- c) Local low pressure caused by split shield geometry
- d) Local high pressure caused by split shield geometry. Ash is pulled and pushed from area of high pressure (d) to area of low pressure (b) keeping area under shield clear of ash.

The accumulation of flyash on the zirconia cell affects its ability to measure oxygen concentration. Flyash and its constituents can reduce the life of the zirconia cell and affect the cells response time to changes in gas concentration. Yokogawa’s large surface area sintered metal filters are designed to keep particulate and ash off the measurement cell.

With time, even the best filter mesh can become plugged with flyash. Even a moderately plugged filter can have dramatic effect on the oxygen measurement. The error occurs during calibration. When calibration gas is flowing to the cell, it becomes trapped in the space between the cell and the plugged filter membrane, effectively raising the gas pressure around the measurement cell. The oxygen analyzer determines the necessary calibration based on the cell millivolt output at the increased gas pressure. When the calibration is complete, the pressure goes back to ambient process pressure. The resulting oxygen measurement is lower than the actual oxygen concentration. This is called *pressure-induced drift*.

A 2psi pressure increase can induce a measurement error 0.5% oxygen lower than the actual oxygen concentration in the process. This error is significant considering the current industry emphasis on emissions and fuel usage. The boiler operator will inject more air into the combustion process to achieve the oxygen control set point, creating problems with NOx generation and an increased use of fuel.

