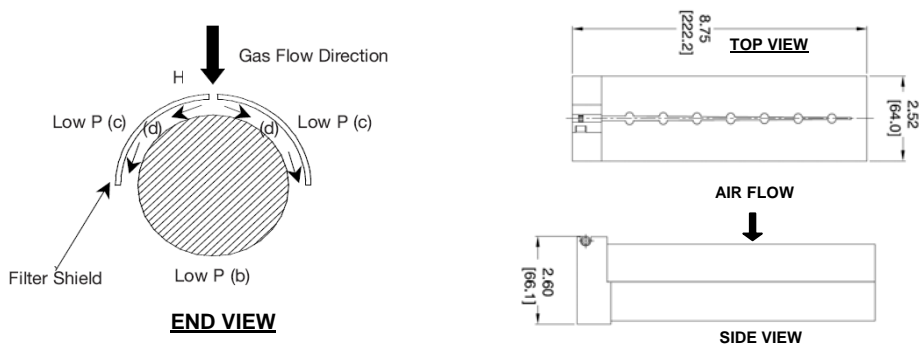


## Filters for Oxygen Probes

Many industries use a variety of fuel sources to fire their processes, including natural gas, coal, oil, trash and waste (also known as biomass). Coal and biomass fuels release a significant amount of carbon particulate when burned, known as fly ash. This fly-ash can clog the Zirconia cell, resulting in slow or no response to changes in the oxygen concentration.

### Self Cleaning Fly-Ash Filter (M1234SE-A)

The Self Cleaning Fly-Ash Filter (M1234SE-A) is a sintered filter that incorporates an aerodynamic shield that deflects the particles, and prevents fly-ash build up from clogging the ZR22 Oxygen Probe. This filter should be used whenever coal or biomass is the primary fuel source.

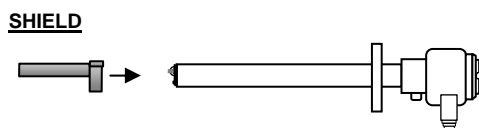


- Filter Material: Hastelloy X
- Base Material: 316 SS
- Max. O.D.: 6.35cm (2.5in)
- Max Operating temp: 700°C (1292°F)
- Pore size: 10 micron

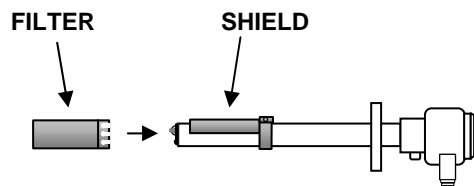
### Standard installation of the Self Cleaning Fly-Ash Filter (M1234SE-A)

\*Note: Prior to installation, clean the ZR22G Detector end with a wire brush to remove existing ash or dust.

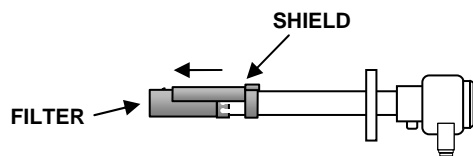
1. Slide the closed end of the filter shield over the end of the probe approximately 9 inches.



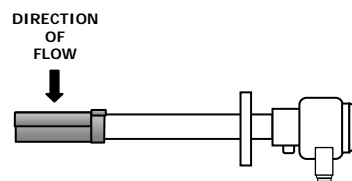
- Slide the filter element over the detector and into the space between the detector and the shield approximately 8 inches. This may be a snug fit, and might require a firm push; however, the filter should not be forced onto the detector.



- Slide the end of the shield over the filter.

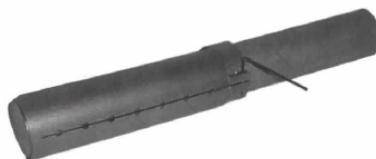


- Align the shield so it protects the filter element from direct gas flow. The shield should cover the filter, and be flush with the closed end of the filter, as shown:



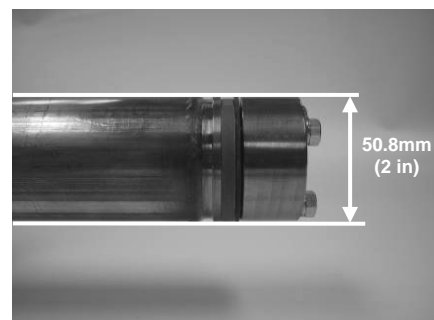
**\*NOTE:** When using the M1234SE-A Self Cleaning Fly-Ash Filter in conjunction with the ZR22R Probe Protector, repeat the steps above, but invert the M1234SE-A shield away from the direction of flow.

- Tighten the clamp screw until the filter cannot be moved by hand. **THE SCREW SHOULD NOT BE TIGHTENED BEYOND THIS POINT.** Over tightening the assembly can damage the detector and filter.



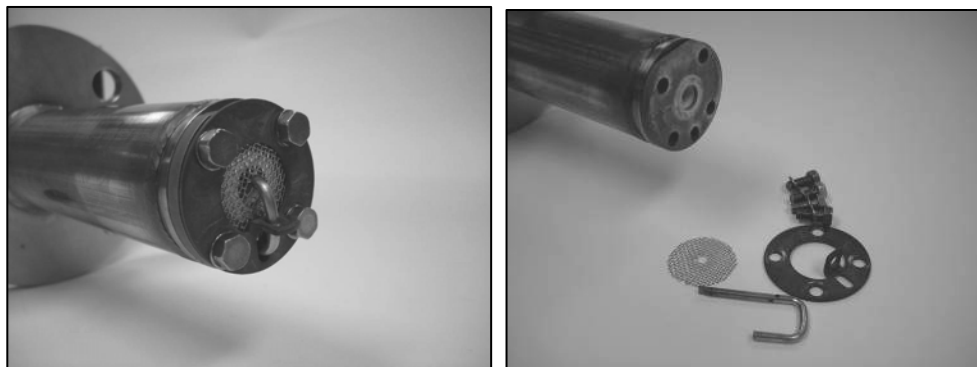
### Dust and Oil Filter E7042UQ

The Dust and Oil Filter attaches to the end of the ZR22 Oxygen Probe, and is used for oil fired applications as well as black liquor recovery systems. The Filter (E7042UQ) utilizes a Silicon Carbide (SiC) filter disc enclosed in a 316SUS cylinder. Once installed the filter will have the same outside diameter as the ZR22 Oxygen Probe (as shown).

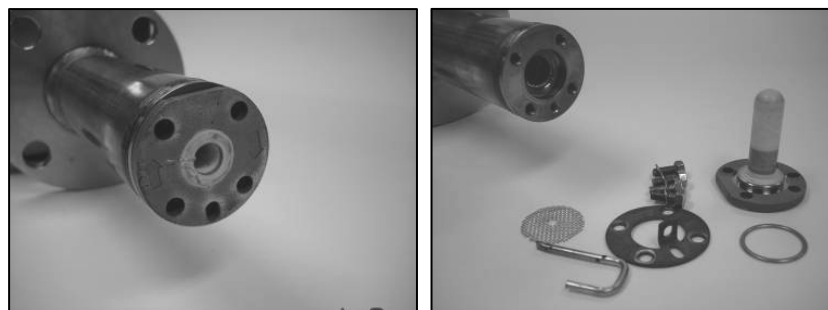


**Dust and Oil Filter Installation (E7042UQ)**

1. Remove the bolts, washers, plate, calibration tube and filter screen that hold the Zirconia cell in place.



2. Remove the Zirconia cell and metal o-ring. Ensure that when removing the Zirconia cell, it is rotated in the direction etched on the face of the cell. (Should be clockwise). Failure to do so may damage the contact spring.



3. Do not re-use the metal o-ring. The dust and oil filter comes with a new metal o-ring that should be used. Replace Zirconia cell (ensuring that the cell is rotated clockwise as it is inserted), plate, calibration tube, and filter screen.



4. Align the notch on the E7042UQ Dust and Oil Filter with the calibration tube.



5. Apply **anti-seize compound** to the bolt threads. Insert the bolts, and torque to 51 in/lbs.



The E7042UQ Dust and Oil Filter installation is now complete, and the ZR22 Oxygen Probe can be installed.

