CLAIMS

1. A capacitive manometer assembly comprising:

a diaphragm including a conductive material;

an electrode structure including an inner electrode, an outer electrode, and a conductive guard structure disposed between the inner and outer electrodes that causes the electrode structure to be relatively insensitive to diffusion of reactive gas onto a region of the diaphragm, the conductive guard structure further comprising a peripheral guard disposed on the electrode structure adjacent the outer electrode at a greater radial distance from the center of the electrode structure;

a support structure arranged so as to support the diaphragm so that the diaphragm is constrained relative to the electrode structure, and the diaphragm is spaced from and axially aligned with the inner and outer electrodes relative to an alignment axis of the manometer; and

a baffle with one or more apertures configured to admit gas into a region adjacent the diaphragm, thereby reducing effects of surface deformation of the diaphragm due to the reactive gas, wherein

the diaphragm is movable relative to the electrode structure between (i) a zero position when the pressure on each side of the diaphragm is the same and (ii) a maximum differential position when the maximum measurable differential pressure is applied to the diaphragm.

2. The capacitive manometer assembly of claim 1, wherein the guard structure comprises an inner and an outer guard separated by a gap.

3. The capacitive manometer assembly of claim 1, wherein the one or more apertures in the baffle are configured in alignment, in a direction parallel to the alignment axis of the capacitive manometer assembly, with a gap between the electrodes or one of the electrodes and the conductive guard structure of the electrode structure.

4. The capacitive manometer assembly of claim 1, wherein the diaphragm comprises a superalloy.

5. The capacitive manometer assembly of claim 1, further comprising a housing having an inlet for admitting gas, wherein the diaphragm, electrode structure, support structure, and baffle are disposed within the housing.

6. The capacitive manometer assembly of claim 1, wherein the outer electrode comprises a non-continuous electrode having a first end and a second end, wherein the first end and second end are separate.

7. The capacitive manometer assembly of claim 1, wherein the one or more apertures in the baffle are configured in alignment, in a direction parallel to the alignment axis of the capacitive manometer assembly, with the guard structure of the electrode structure.

8. The capacitive manometer assembly of claim 7, wherein the one or more apertures in the baffle are aligned, in a direction parallel to the alignment axis of the capacitive manometer assembly, with an inner third of the guard structure of the electrode structure, wherein the guard structure is divided into inner, middle, and outer thirds in a radial direction from the center of the electrode structure.