The following guide provides a list of some commonly encountered problems with glass-to-metal seals and possible causes.

Cracking

- Radial crack Glass: Glass CTE higher than the pin
- Circumfuncial crack: Glass CTE lower than the pin
- Meniscus crack: Meniscus is too high, Compression forces from the metal housing are too high
- Planner crack at seal mid-point Seal is designed too long, Mismatch of CTE too large

Bubbles

- Uniform throughout glass: Sealing temperature is too high, Sealing time is too long, The glass density is lower than normal
- At the interface: Furnace atmosphere is not optimum, Possible metal cleaning problem, Possible preform cleaning problem, The metal is out-gassing, Possible reaction between the glass and metal.
- Single big bubble: Glass contamination
- Bubbles at bottom of the seal: Glass could be reacting with fixture
- Bubbles at the top of the seal: The sealing furnace atmosphere is not optimum

"See-Through" Seals

- See-through seals: Low weight glass preform, Glass preform diameter is too small for the housing, Glass melt density is higher than normal

High Meniscus

- High meniscus: Glass preform weight is too high, Glass melt density is lower than normal

Low Pin Pull Strength

- Low Pin Pull Strength: Not enough bonding, Metal requires pre-oxidation and / or coating

Glass Not Wetting

- Glass not wetting: Too much oxidation on the metal, Metal requires pre-oxidation, Metal not clean, Furnace atmosphere not optimum, Choose a different metal or glass

Low Breakdown Voltage

- Low breakdown voltage: Inclusion(s) in the glass, Glass composition has a high dielectric constant, Seal design is not optimum