

How to Improve Crystal Performance

Fil-Tech recommends the following guidelines for improving crystal performance:

1) Keep the crystal surface clean. Avoid any physical contact with the center of the crystal during handling and blow off any particulates using dry and filtered air or dry nitrogen. Keeping the crystal surface clean lowers resistance and improves film adhesion.

2) Maintain good electrical contact with the crystal. Keep cables in good condition and snug to the sensor and feedthrough. Periodically inspect the finger spring contacts in the sensor head and adjust or replace when necessary.

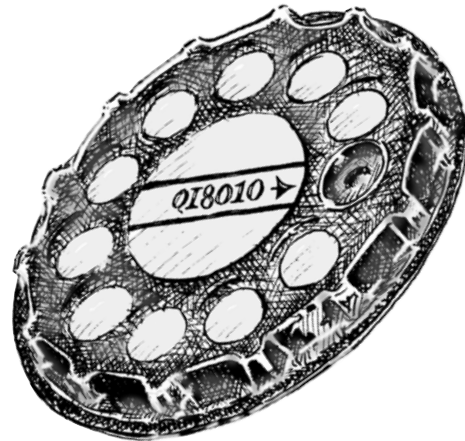
3) Keep the sensor head cap clean. Material buildup around the opening can cause mechanical coupling and damping if it contacts the crystal.

4) Maintain the crystal sensor water temperature at a minimum of 25°C. When using a circulating chiller with heating capability, run the sensor at 50°C for high stress coatings. The higher temperature reduces stress as the coating deposits and also improves film/crystal adhesion.

5) Use Stress Relieving Alloy crystals in place of Gold for high stress material depositions. Stress Relieving Alloy electrodes yields, dissipating film stress before it reaches the crystal surface.

6) Shield the crystal from direct exposure to radiant heat sources or glow.

7) Minimize source "spitting" during evaporation, as "splatters" (large pieces of evaporant) dramatically increase the resistance of the crystal and lead to erratic rate function or early failure. Reduce early failure with proper source rate control, proper distance from the crystal to the source, and proper source type (e.g. Drumheller type for Silicon Monoxide).



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