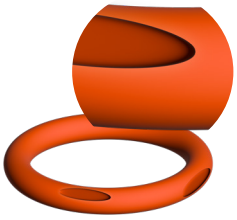
O-RINGS 101: Protecting Your Data

Types of O-Ring Failure



INSTALLATION DAMAGE

Signs To Look For:
Small nicks, cuts, and gashes in the O-Ring

How To Prevent This:
Install the new O-Ring carefully, per instructions below. In service, lubricate the O-Ring properly to prevent pinching and shearing.

THERMAL DEGRADATION

Signs To Look For:
Radial cracking, deformation

How To Prevent This:
This is not common. Therefore, it should be assumed the logger has been used outside of its specified operating range. Please verify the operating environment before continuing to use the logger.

COMPRESSION SET

Signs To Look For:
A flattened cross-section relative to the sealing surfaces.

How To Prevent This:
Review the application in terms of temperature and chemical exposure. The temperature specification of the logger may have been exceeded, or a chemical present in the process might have hardened the O-Ring.

OUTGASSING

Signs To Look For:
Reduction in cross-section (can be hard to detect visually)

How To Prevent This:
This is common in high vacuum applications. Contact MadgeTech to discuss a solution for your application. (It might be as simple as not using an O-Ring at all!)

CHEMICAL DEGRADATION

Signs To Look For:
Hardening, blistering, cracking, discoloration

How To Prevent This:
Investigate the environment in which the logger is used to see what chemicals are present. Contact MadgeTech for a chemically compatible O-Ring, specific to the application.

SPIRAL FAILURE

Signs To Look For:
Cuts or marks spiraling around the circumference

How To Prevent This:
Install the new O-Ring carefully per the enclosed instructions. In service, lubricate the O-Ring regularly to prevent twisting

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WE BUILD DATA LOGGERS

Do's And Don'ts Of O-Ring Maintenance

MadgeTech data loggers come directly from the factory with high quality O-Rings that have been properly installed. As a user, there are only a few things that you need to remember to maintain a functional O-Ring seal.

DO:

- Clean them frequently (use compressed air or a soft brush to avoid abrasion).
- Lubricate regularly (if it doesn't feel slippery, it needs to be lubricated). We recommend Parker® Super-O-Lube, but any silicone based O-Ring lubricant will work. This is most important on the seals that are frequently opened and closed for communication with the logger.
- Inspect the O-Ring regularly for signs of failure (see the reverse side of this pamphlet for details on what to look for).

DON'T:

- Poke, jab, pry at the O-Ring with sharp or pointed objects.
- Expose the O-Rings to harsh chemicals (when in doubt, call MadgeTech).
- Expose the seals to high pressure (all of our submersible data loggers are rated to 60PSIG).
- Expose the seal to high temperatures (see data logger for operating temperature range).

Proper O-Ring Replacement

- Unscrew the part(s) to expose the O-Ring.
- Use a small pointed tool (knife or pick) to pry the old O-Ring out of its groove.
- Make sure that the O-Ring groove is free of any dirt or debris.
- Partially screw the mating parts back together leaving the O-Ring groove exposed.
- Apply a thin coat of lubricant to the O-Ring.
- Stretch the O-Ring over the cap and into its groove. Avoid stretching the O-Ring over the threads! Sharp threads can cut your new O-Ring!

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