

## Spherically Mounted Retroreflector (SMR) Cleaning Instructions



### About SMRs

SMRs are precision tools used in a variety of environments to measure and record data on tools, assemblies, and other objects using a laser tracker. SMRs can accumulate dirt, grime, and other foreign material which can reduce the SMRs ability to return the laser beam and track well. It is suggested you clean the optic if necessary but only when necessary. SMRs are an important part of your laser tracker measurement system and should be well taken care of. SMRs are precision parts that do require occasional cleaning.

### Items Required for Cleaning

- \_\_\_a. SMR requiring cleaning: Solid, Rhino (Inserted), or Silverback (Glass)
- \_\_\_b. Distilled Water – in a spray bottle or other small container
- \_\_\_c. Compressed air – We recommend Miller and Stevenson MS-222N
- \_\_\_d. Denatured Alcohol
- \_\_\_e. Precision Q-tips for cleaning - We recommend Q-tips brand Precision Tips

*Notes: Solid SMR and Rhino SMR Optics are bare gold. That means that they do not have a protective coating over the top of the optical surface. This ensures that they provide the most beam return signal possible however it makes them more delicate and prone to scratching. Take extra care when cleaning bare gold optics. The Silverback optics are overcoated and will not scratch as easily however they are glass and if dropped will break.*

## Cleaning Instructions

### Determine Extent of Cleaning Needed for the SMR

Some laser trackers have built in test you can run that will show you SMR return signal. If the SMR only has minor dust and the software says it has good return we suggest you continue to use the SMR until it becomes problematic as there is always a chance you could scratch the optic when you clean it and cause more harm than good. If only dust particles are on the surface, use only compressed air as a method of cleaning the SMR. If grime, grease, or other foreign material is on the SMR optic and cannot be removed by compressed air alone, first rinse and let dry with distilled water and then if necessary use denatured alcohol and Q-tips.

### Option A, SMR Cleaning with Compressed Air

1. Hold SMR 1-2 inches away from compressed air. Make sure to keep the can of compressed air upright so it does not expel any of the refrigerant-based propellant. If the can has been turned on its side or upside down do not use it. Always perform a test spray away from the optic to clear the line and straw before spraying any air at the optic. The propellant can fog the optic of the SMR. If this happens please contact customer support.
2. Spray compressed air into SMR optics in short, controlled bursts. Make sure you put one finger on the trigger and one finger to hold the straw down so that it does not blow out of the can and hit the SMR optic. Repeat until foreign material is removed. If troublesome material remains, rinse the SMR optic with distilled water and let dry. If additional cleaning is required clean with denatured alcohol and Q-tips per below.

### Option B, SMR Cleaning with Denatured Alcohol and Q-Tips



**Warning:** Never reuse any part of the Q-tip more than once. Reuse may result in removed material on Q-tip scratching or being reapplied to retroreflector.

1. Wet one end of a new Q-tip with denatured alcohol. Do not use any more denatured alcohol than necessary. Try not to let it wick down the outside of the optic or pool in the optic. Gently place the Q-tip on the surface of the optic and slowly spin the Q-tip and pull it along the optical surface never rotating the Q-tip more than 300 degrees. Once you have performed this step change ends of the Q-tip and repeat. Repeat as necessary, using Q-tip a maximum of 2 times (One time for each end)
2. Allow denatured alcohol to evaporate between passes so you can see any dirt and grime on the optic.
3. **VERY IMPORTANT** – Allow optic to dry completely and any denatured alcohol to evaporate completely (wait at least 10 minutes) before putting protective cap back on.

MW-TB-2017-01-A\_12082017

**SMRS**



**Warning:** We do not promote or permit the use of Acetone or Ultrasonic cleaners on any of our SMRs. If these or other similar chemicals or methods that are not described above are used to clean your SMR we will not be able to assist you with any warranty related support.