

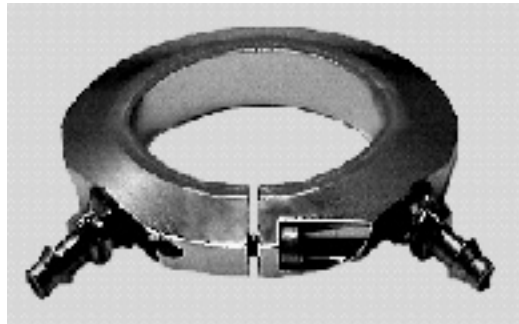
## Objective Cooling Collar Instructions

### Description:

The Bioptechs Cooling Collar is an attachment device to remove heat from an objective through fluid transfer. The Cooling Collar provides an isolated fluid passageway for chilled fluid to circulate around the objective thus absorbing heat by conduction to the adjacent metal surface.

### Instructions:

1. Loosen the Cooling Collar mount by turning the 5/64 Allen cap screw located between the two barb fittings.
2. If necessary, remove any decorative parts of the objective so that there is a 5mm high, cylindrical portion of the inner tube exposed at the end of the objective closest to the specimen.
3. Place the objective cooling collar onto the exposed cylindrical portion and secure by tightening the 5/64<sup>th</sup> socket cap screw.
4. Attach coolant and drain lines to the barbs and pump coolant through the Cooling Collar at a pressure not exceeding 5PSI.
5. In cases where objective temperatures are to be lowered more than 10°C below ambient, a thermal isolator should be used to increase thermal efficiency and prevent condensation from forming on the exposed lens element.



Objective Cooling Ring w/Barb Fittings

### Objective Thermal Isolator

The Bioptechs Thermal Isolator is made of a low thermal conductivity material for mounting objectives to the nosepiece of a microscope, and provides a gas trap to enclose the exposed optical elements from condensation. It is necessary to provide a supply of dry air or gas into the base of the Thermal Isolator. The Thermal Isolator will add 9mm to the height of the objective, therefore it is usually necessary to elevate the stage by the same amount. Due to the wide variety of stages available, Bioptechs does not provide spacers for stage mounts. It may be convenient to use objective spacers to increase the height of other objectives if they are used on the turret.

### Installation Instructions

Screw the Thermo-isolator into the nosepiece of the microscope. Attach air/gas flow lines to one of the four tubing barbs, then screw the objective into the Thermo-isolator. Apply dry air/gas at a rate sufficient to maintain a positive atmosphere of dry air/gas in the cavity formed between the last element of the objective and the window of the isolator.