

Gradient Lens Corporation®

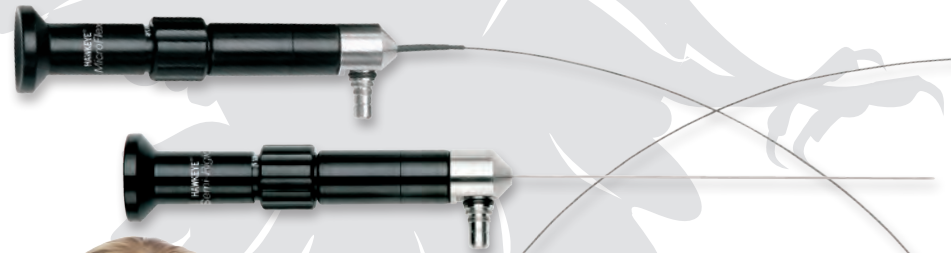


PRECISION BORESCOPIES

User Guide

HAWKEYE® PRO MICROFLEX & PRO SEMI-RIGID

Precision Borescopes



Your Complete Source for
Testing Equipment *Since 1969!*

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1-847-577-3980
Info@BergEng.com



PRECISION BORESCOPIES

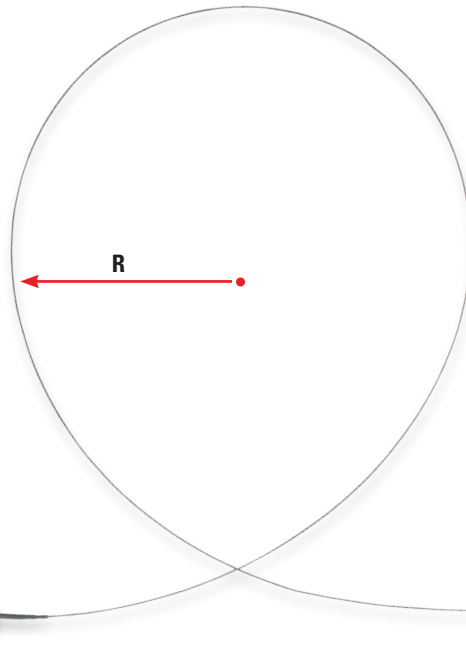
Hawkeye® Pro MicroFlex and Pro Semi-Rigid Borescopes

The Hawkeye® Pro MicroFlex and Pro Semi-Rigid borescopes are very small diameter (.020 - .060 in / .5 – 1.5 mm) fiber-based scopes that provide the benefits of small diameter with greater durability than rigid scopes of similar diameter.

Hawkeye® Pro MicroFlex Borescope

The Hawkeye Pro MicroFlex borescope has a thin, plastic outer sheath. Its minimum bend radius depends on its diameter as follows:

Diameter	Minimum R
.5 mm	1.5 in
.9 mm	2.5 in
1.5 mm	3.5 in



Hawkeye® Pro Semi-Rigid Borescope

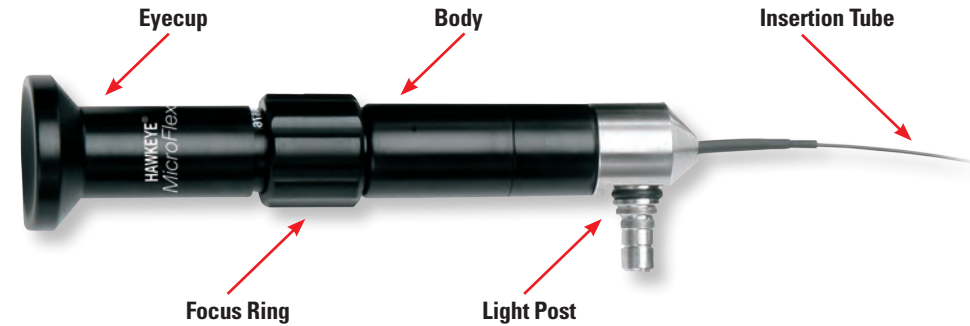
The Hawkeye Pro Semi-Rigid borescope has a nitinol outer sheath and can be deflected approximately 30 degrees in any direction from its normal position.



CAUTION: Be careful not to exceed the limits of bending described above or the internal fibers may

Major Parts

(Pro MicroFlex shown; Pro Semi-Rigid similar)



Focus the Scope

- Hold the body of the Pro MicroFlex in one hand and look into the eyecup.
- Point the end of the insertion tube at a high contrast object such as black text on white paper at a distance of about 5 millimeters from the insertion tube tip.
- Looking through the eyecup, turn the focus ring until the image is in the best focus. The focus ring should thereafter not need to be adjusted for the current user. Other users will have to adjust the focus to suit their eyes.



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Attaching a Light Source

If using a Luxxor® 35 LED or Luxxor® 50 light source, simply push the female end of the Luxxor® light guide onto the light post. Pull to remove. Other light guides with a female ACMI-style connector will also fit.



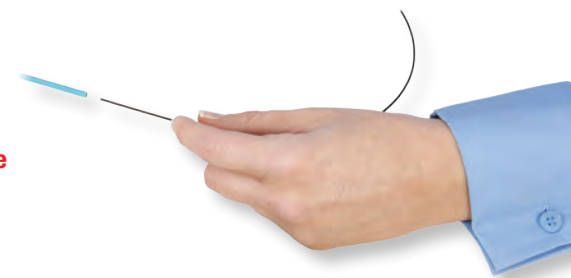
Alternatively, the Hawkeye® SuperNOVA™ LED or Hawkeye® LED lights will thread onto the light post.



Pro MicroFlex Operation

With one hand, carefully guide the insertion tube of the Pro MicroFlex into the area to be inspected.

Do not kink the insertion tube, as the internal fibers may break and degrade the image or light output.



Use the other hand to hold the body of the scope and look into the eyecup to observe the image.

When finished, withdraw the insertion tube carefully to avoid straining and breaking the fibers if it gets caught on something.



NOTE: The Pro MicroFlex insertion tube is covered with a very thin layer of plastic. This layer will wear and allow some light to be visible on the outside of the insertion tube. This is normal and does not degrade the illumination performance of the scope.

Pro Semi-Rigid Operation

Holding the light source or the body of the Pro Semi-Rigid, guide the insertion tube into position.

Look into the eyecup to observe the image.

Be careful not to bend the insertion tube too sharply to avoid fiber breakage.



Mounting the Adapter

The Hawkeye® Pro MicroFlex is shipped with an adapter to connect the Pro MicroFlex directly to any video camera with a C-mount, such as the Sony XC-505.

To use the C-mount adapter, first unscrew the eyecup from the Pro MicroFlex.



Next, push the C-mount adapter onto the end of the Pro MicroFlex until it slides over the o-ring and starts to engage the thread. Then screw it on the rest of the way.



C-Mount Adapter



Threading onto the C-Mount Camera

Now the Pro MicroFlex may be threaded onto a C-mount video camera as shown below.

C-Mount Camera



Care and Maintenance

- Clean the insertion tube with soapy water, then rinse and dry.
- Clean the glass surfaces in the viewing tip, light guide connector and eyepiece with a soft cloth or cotton swab and a lens cleaning solution. Isopropyl (rubbing) alcohol or common household glass cleaners will work as well.
- Clean the borescope body with a damp cloth.
- Do not immerse the body in water – it is not watertight.

When packing the borescope, take care to:

Secure entire scope length in storage cut-out before closing case lid.



CAUTION: Do not let case lid fall on insertion tube!

Service

Warranty

Gradient Lens Corporation warrants the Hawkeye® Pro MicroFlex to be free of defects in material and workmanship and to perform in accordance with the manufacture's specifications when subject to normal use and service for a period of one year from the date of purchase. Gradient Lens Corporation will either repair or replace components found to be defective or at variance from the manufacture's specifications within this time at no cost to the customer. It shall be the purchaser's responsibility to return the instrument to the authorized service center.

This warranty does not cover breakage or failure due to tampering, misuse, neglect, accidents, improper installation, modification, shipping, or to improper maintenance, service and cleaning procedures. This warranty is also void if the instrument is not used in accordance with the manufacture's recommendations or if required service is performed by anyone other than a

