

Industrial Endoscopes Fiberscopes & Borescopes

# Light Scope/Bore Scope

NEW

Testing and visual inspection for automobiles, industrial machinery, gas, air and spacecraft, petrochemical plants, and vessels.



# Light Scope

Built-in light source for ease of portability!

## Main Features

- Diameter of 8mm at tip of insertion end, and 10mm with side view adapter attached allow you to get into tight locations.
- Effective length of 1,000~3,000mm allows visual inspection of far-back locations.
- Water-resistant cable removes worries about getting cable wet.
- Adjust focus distance from infinity to 10mm.

## Main Applications

- |                             |  |                             |  |
|-----------------------------|--|-----------------------------|--|
| <b>Automobiles</b>          | Engines, transmissions, differentials, air conditioners      | <b>Sewers</b>               | Inside pipes, toilet clogs, other plumbing problems          |
| <b>Industrial Machinery</b> | Engines, transmissions, inside hydraulic pipes               | <b>Petrochemical Plants</b> | Process plumbing, water supply pipes, pressure storage tanks |
| <b>Gas</b>                  | Inside pipes and exhaust openings                            | <b>Vessels</b>              | Boiler interiors, turbine interiors, diesel engines          |
| <b>Air &amp; Spacecraft</b> | Turbine blades, combustion chamber interiors, rocket engines |                             |  |

19,000 Lux  
(6 times brighter than standard Moritex model)  
Viewing angle: 27°

## Sample Uses

Visual inspection of automobile engine interior

Scope used: MSGI-1350 II



▲Piston

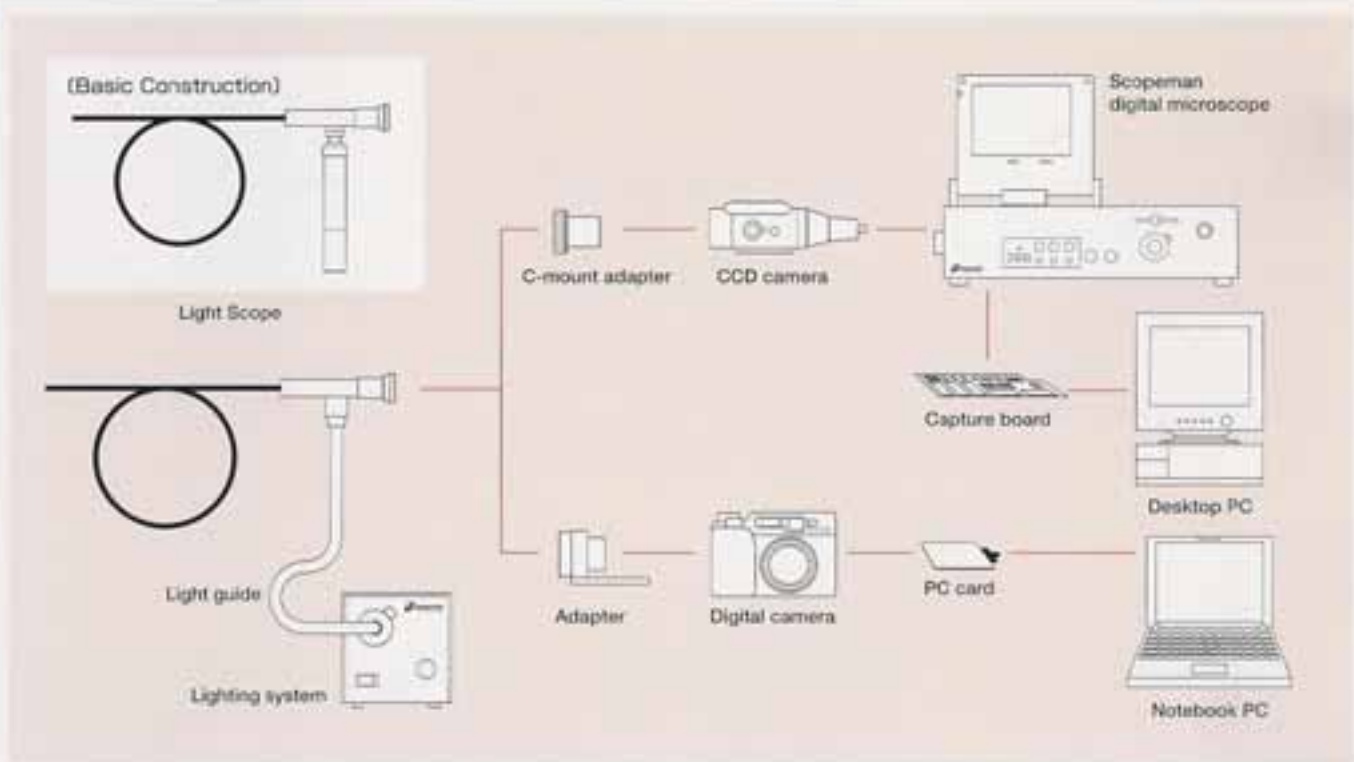


▲AC evaporator

All digital – view, capture, and record crisp images

| Interlock Type   |  | Flexible Type  |   |
|--|--|--|---|
| MSPI-1000 III<br>MSPI-2000 III<br>MSPI-3000 III<br>MSGI-1350 III (Glass Fiber) |  <p>Maintains any curve state</p> | MSPS-1000 III<br>MSPS-2000 III<br>MSPS-3000 III<br>MSGS-1350 III (Glass Fiber) |  <p>Flexibility for insertion in pipes and other locations</p> |

## System Flow



### Inspection of helicopter engine interior

Light and portable, easy to reach tight locations.  
Scope used: MSPI-1000 III



Wide selection for wide range of applications

## Specifications

| Scope          | Type  | Interlock Type (Maintains any curve state)  |               |               | Flexible Type (Flexibility for insertion down pipe shapes) |                          |               |               |               |
|----------------|---|---|---------------|---------------|--|--------------------------|---------------|---------------|---------------|
|                | Fiber Material                                      | Plastic   |               |               | Glass  | Plastic                  |               |               | Glass         |
|                | Model   | MSPI-1000 III   | MSPI-2000 III | MSPI-3000 III | MSGI-1350 III  | MSPS-1000 III            | MSPS-2000 III | MSPS-3000 III | MSGS-1350 III |
| Image Fiber    | Pixels  | 3,500   |               |               | 10,000   | 3,500                    |               |               | 10,000        |
|                | Line Bore   | 35 μm   |               |               | —  | 35 μm                    |               |               | —             |
| Light Source   | Lamp  | 3.5V 0.7A 2.55W   |               |               |  |                          |               |               |               |
|                | Power   | Two AA dry-cell batteries (sold separately)<br>[Provides continuous light for 3 hours (when alkaline batteries used)] |               |               |  |                          |               |               |               |
| Optical System | View  | Direct (side view optional)   |               |               |  |                          |               |               |               |
|                | View Angle  | 27°   |               |               |  |                          |               |               |               |
|                | Focal Distance                                      | 10mm~infinity   |               |               |  |                          |               |               |               |
|                | Waterproofing                                       | Cable waterproofed to 1~1.3 atmospheres (1013~1317hPa)  |               |               |  |                          |               |               |               |
|                | Working Temperature                                 | -20°C~+60°C   |               |               |  |                          |               |               |               |
| Cable          | Material  | SUS interlock + PVC cover   |               |               |  | SUS flexible + PVC cover |               |               |               |
|                | Minimum Bend Radius                                 | 100mm   |               |               |  | 40mm                     |               |               |               |
|                | Effective Length<br>(Water-resistant case supplied) | 1000mm  | 2000mm        | 3000mm        | 1350mm   | 1000mm                   | 2000mm        | 3000mm        | 1350mm        |

Note: Specifications and appearance may be modified without notice in order to implement improvements.



Not for medical applications

## Standard Package



**Scope & Hard Case**  
For scope protection & portability



**Battery Handle Lighting**

## Optional Accessories



**Light Guide**  
Effectively send light from lighting system to scope (flexible type)



**Digital Camera Adapter**  
Adapter for attaching digital camera



**Side View Adapter (90°)**  
View pipe inner walls & other surfaces



**Lighting System**  
Bright, stable light source in compact design



**C-mount Adapter**  
Adapter for attaching CCD camera. Connect camera and lightscope to view images



**Valve**  
3.5V 0.7A 2.55W

# Bore Scope

Industrial Endoscopes : Borescope

## Non-destructive Inspection Scope for Easy Visual Inspections

A borescope has an extremely simple construction. Light is shined on an object from a thin stainless steel tube, via optical fiber; a relay lens system then sends clear images to the eyepiece. The borescope offers ease of use and unrivaled cost performance for visual inspection of cavities and hollow spaces



### Main Features

- Use of multiple glass rods rather than high-priced miniature lens lowers cost
- No distortions, blurring, or other lens aberrations because of special construction
- Possible to focus on objects from arbitrary distance to scope tip.
- Attach a digital camera or digital video camera using special digital conversion adapter
- Comes with battery handle with adjustable light intensity and side-view adapter
- Attach side-view adapter and rotate to get 360° side viewing angle.



### Main Applications

- Manufacturing Industry** Quality control (internal/external), non-destructive inspections, close-up visual inspections of die holes
- Firearms** Inspection of small arms, illuminate bullets and barrel, inspect chamber and bullets
- Transportation** Inspection of engines, pistons, door lock mechanisms, and aircraft turbine blades
- Construction** Inspection of security systems, building maintenance
- Observation of insects and other organisms**

### Sample Uses

#### Inspection of aircraft interior

Perfect for inspecting cavities and hollows  
Scope used:  
Bore Scope  $\phi 4.2-160$



▲Rotor

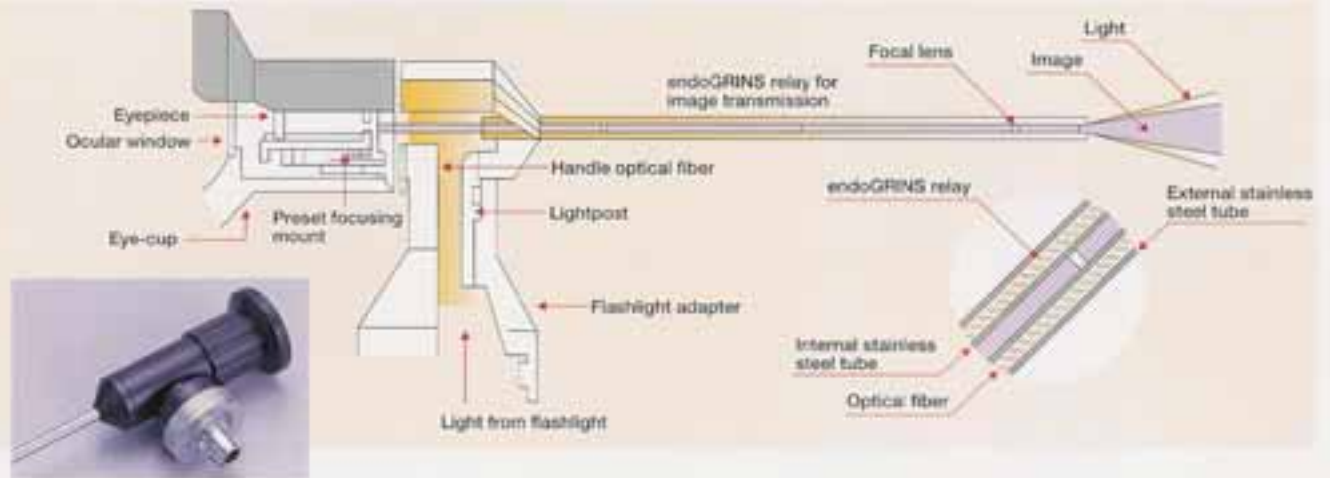


▲Stator

# Bore Scope

Clear images sent using unique endoGRINS relay

## Construction



## Relaying the Image

The job of forming an image at one end of the borescope on the other end via the focal lens isn't easy.



Borescopes with Hopkins design also available

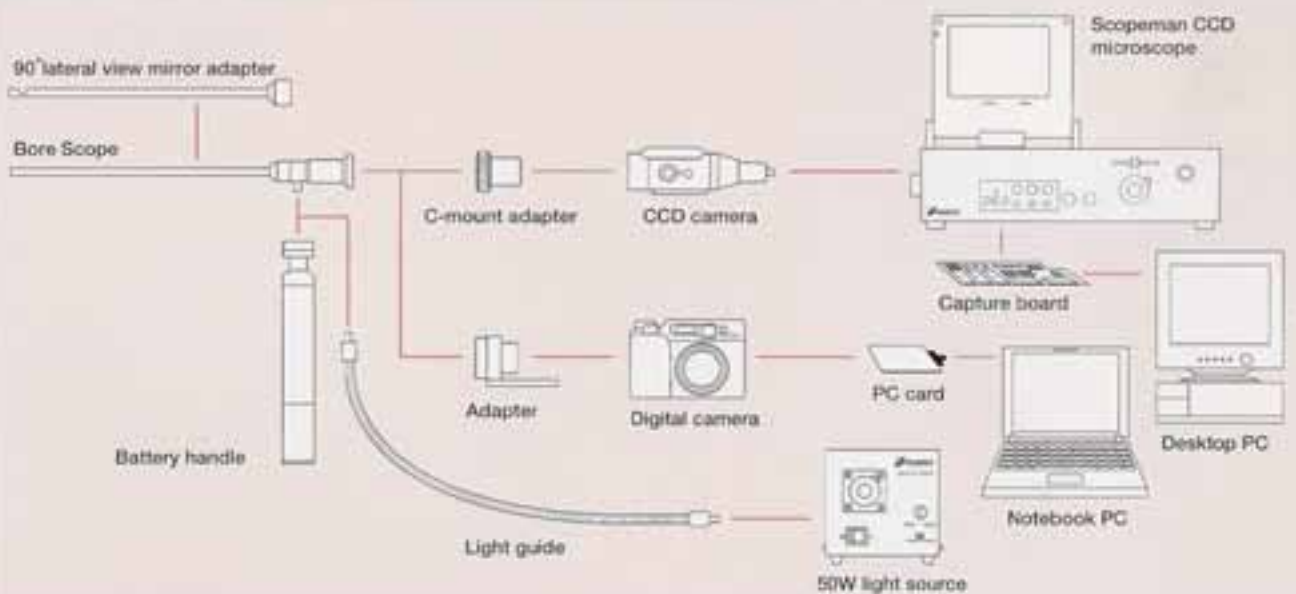
Note: While these designs are good at relaying images, they require the use of a large number of expensive miniature lenses.

Instead of this type of lens, Moritex borescopes only use multiple glass rods.

All endoGRINS lenses are manufactured using a proprietary ion exchange process. Almost all deterioration of image quality is due to lens aberrations, but we have resolved these issues through manufacturing technologies and patented color aberration balancing research.



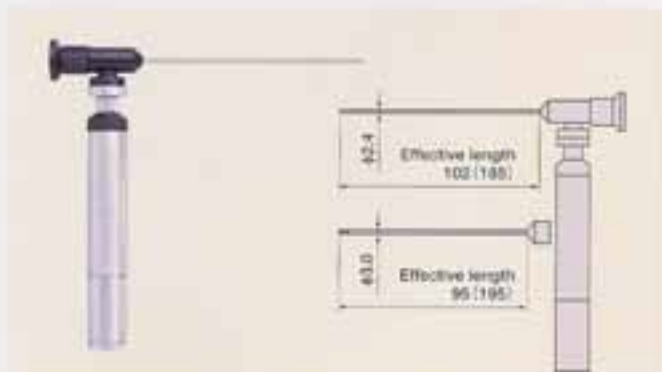
## System Flow



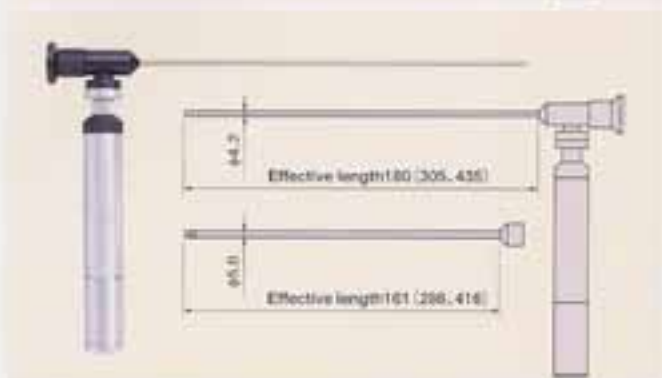
## Extensive lineup to meet all your scoping needs

## Specifications

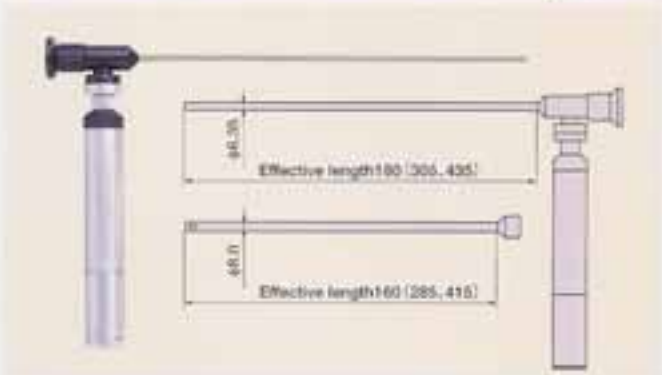
External diameters available from 2.4 to 6.35 mm. Effective insertion lengths available from 95 to 435 mm. Insertion section cannot be selected.



|               | Diameter | Effective Length<br>Viewing Direction | View          | Angle |
|---------------|----------|---------------------------------------|---------------|-------|
| (Scope)       | 2.4mm    | 102mm                                 | Direct        | 32°   |
| (90° Adapter) | 3.0mm    | 95mm                                  | 90° side view | 32°   |
| (Scope)       | 2.4mm    | 185mm                                 | Direct        | 32°   |
| (90° Adapter) | 3.0mm    | 195mm                                 | 90° side view | 32°   |



|               | Diameter | Effective Length<br>Viewing Direction | View          | Angle |
|---------------|----------|---------------------------------------|---------------|-------|
| (Scope)       | 4.2mm    | 180mm                                 | Direct        | 37°   |
| (90° Adapter) | 5.0mm    | 161mm                                 | 90° side view | 37°   |
| (Scope)       | 4.2mm    | 305mm                                 | Direct        | 37°   |
| (90° Adapter) | 5.0mm    | 286mm                                 | 90° side view | 37°   |
| (Scope)       | 4.2mm    | 435mm                                 | Direct        | 37°   |
| (90° Adapter) | 5.0mm    | 416mm                                 | 90° side view | 37°   |



|               | Diameter | Effective Length<br>Viewing Direction | View          | Angle |
|---------------|----------|---------------------------------------|---------------|-------|
| (Scope)       | 6.35mm   | 180mm                                 | Direct        | 42°   |
| (90° Adapter) | 8.0mm    | 160mm                                 | 90° side view | 42°   |
| (Scope)       | 6.35mm   | 305mm                                 | Direct        | 42°   |
| (90° Adapter) | 8.0mm    | 285mm                                 | 90° side view | 42°   |
| (Scope)       | 6.35mm   | 435mm                                 | Direct        | 42°   |
| (90° Adapter) | 8.0mm    | 415mm                                 | 90° side view | 42°   |



Not for medical applications

## Standard Package



Carrying Case  
With side-view adapter

## Optional Accessories



## Light Guide

Effectively send light from lighting system to scope (flexible type)



## Lighting System

Bright, stable light source in light, compact design



## Digital Camera Adapter

Adapter for attaching digital camera

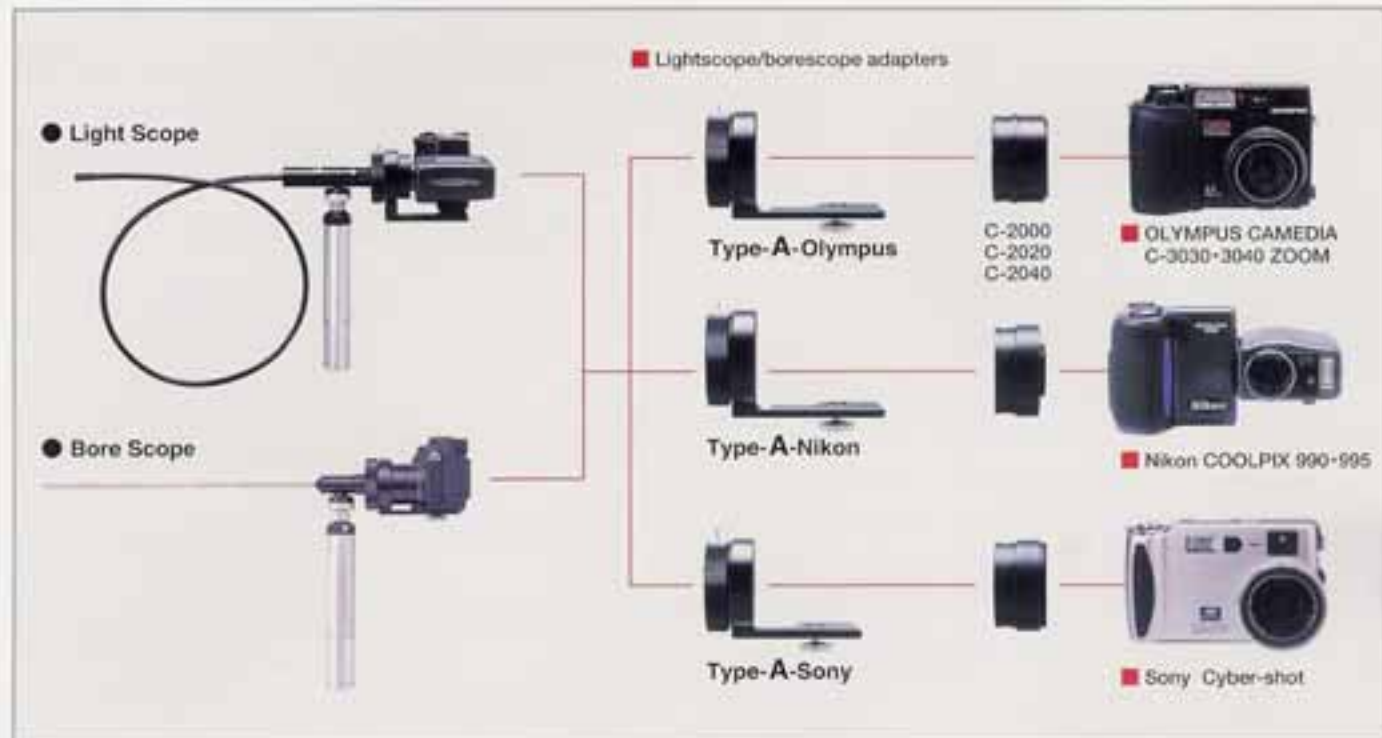


TZe  
C-mount  
Adapter

# Light Scope/Bore Scope

Digital cameras are expanding the applications of digital imaging.

## DIGITAL CONVERSION ADAPTER



## Sample Images



Not for medical applications

Note: Specifications and appearance may be modified without notice in order to implement improvements.

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