

Set up Flexia BGA in a few seconds and operate it stationary or mobile.



Connect Flexia BGA system to your PC or Laptop and benefit from Digital Image Capture, Measurements and Data Management using powerful "Optilia Picsara" Software.

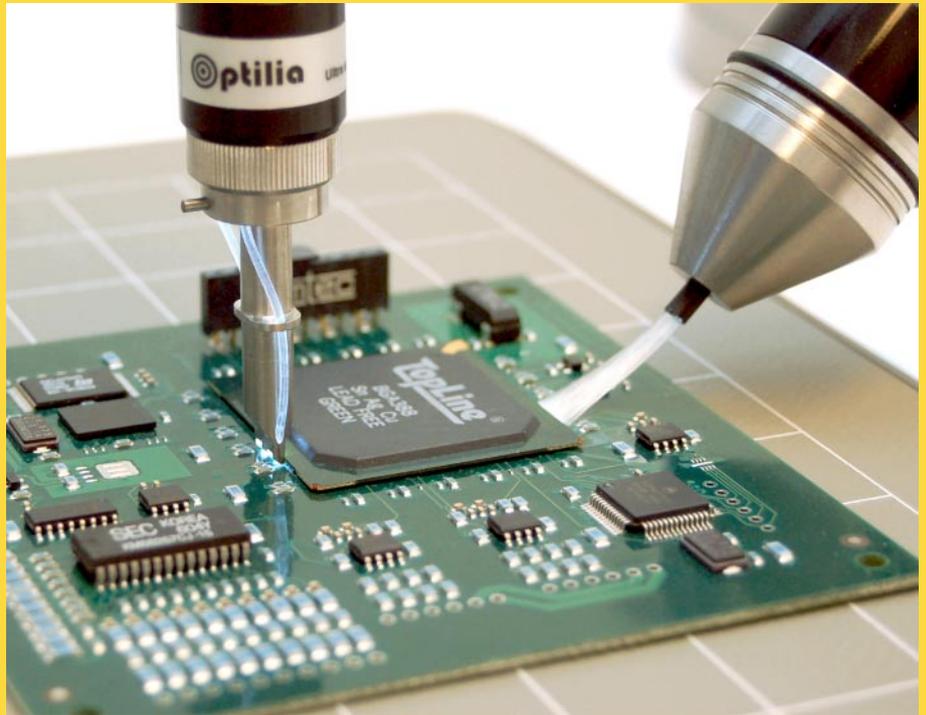


Exchange the BGA Lens with the included Standard Zoom Lens and convert Flexia to a high resolution Video Microscope for Visual Inspection of assembled PCBs, solders, pads, scores, components, etc.



# Flexia BGA Inspection Systems

New, highly Flexible, Video Microscope for Easy and Reliable Visual Inspection of solder joints of BGA,  $\mu$ BGA, CSP and Flip-Chip packages

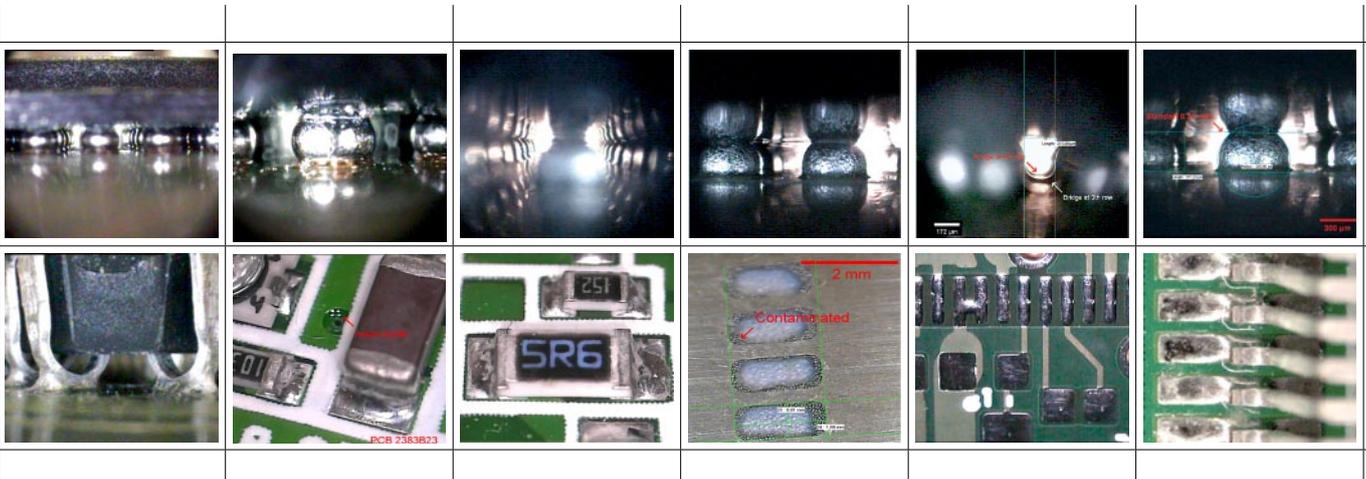


Optimised for optical inspection of lead-free solder joints.

ESD protected

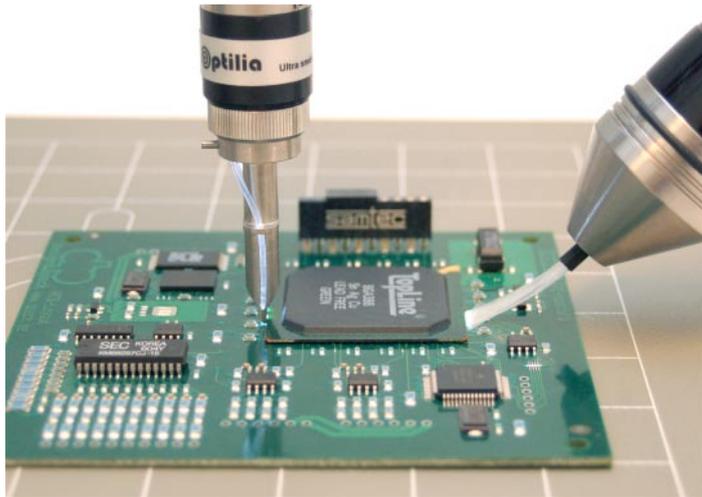


## High Quality Flexible Visual Inspection Systems



Hidden solder joints and low standoff heights of BGA packages make traditional post-placement inspection extremely difficult to accomplish. The search for a reliable and cost effective solution for optical inspection of BGA has led to the development of the highly versatile Flexia BGA inspection system.

Flexia BGA can be used as a cost effective alternative to, or in combination with conventional x-ray inspection systems. Unlike traditional x-ray systems, however, Flexia BGA allows the operator to confirm solder ball shape, bridging, excess flux, micro cracking, surface defects, abnormalities, cleanliness and other soldering defects on BGA components.

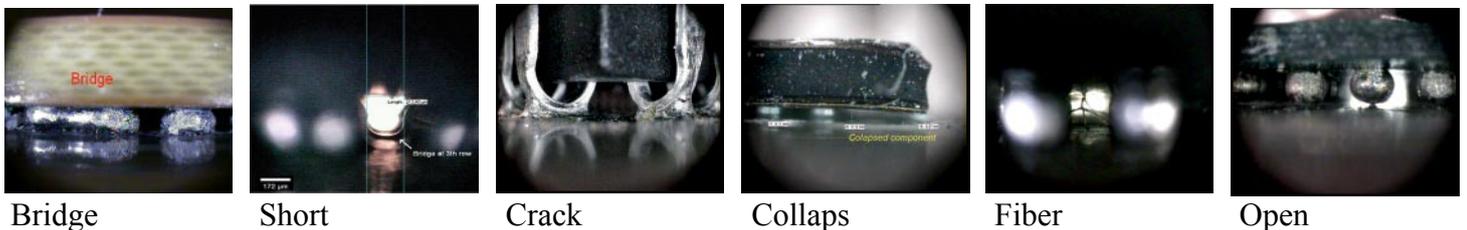


Flexia BGA Inspection System consist of Basic Flexia microscope unit, low aperture side viewing BGA zoom lens with built-in LED illumination, external background illumination, extra SMT/PCB inspection 1-60x macro zoom lens and specially designed focusing stands.

Flexia BGA creates sharp pictures of solder balls underneath BGA , mBGA, CSP and Flip-Chip packages up to 10 rows with down to 0.05 mm component stand-off.



Sample pictures taken by Flexia BGA inspection system:



View	X-ray Inspection	Optical Inspection
Placement	✓	✓
Bridging	✓	✓
Show voids	✓	—
Cold solder joints	*	✓
Reflow problems	*	✓
Excess flux	—	✓
Contamination	—	✓
Ball shape	—	✓
✓= Yes		
* = Possible with training		

comparison of X-ray and Optical Inspection capabilities

Flexia BGA is compact, flexible and ergonomically designed. The equipment weights only 200 gram including its BGA lens and the built-in LED illumination. Flexia BGA can be operated mobile in one hand or be deployed as a regular microscope when mounted on its ESD-protected boom Stand.

In addition to the side viewing BGA lens, Flexia BGA contains, 100x fixed focal length objective and a 1-60x high quality varifocal Lens that turns the equipment into a Video Microscope for regular Visual Inspection and Quality Control.



Flexia video and digital microscopes are designed to comply with the requirements of electronics manufacturer regarding flexibility, image quality, time and cost effectiveness. Flexia is ESD-protected and EPA approved according to EN and IEC standards.

## Included items when you order BGA Inspection kits:

### Delivery kit OP-019 156:

- Flexia Definition Digital, HM, with 100x lens, ESD-protected
- Side Viewing BGA lens with Small Size 90° optical head
- Low Aperture 90° Optical Head for BGA lens
- 1-100x varifocal lens with built-in LED ringlight
- RingLight White LED for 100x Objective
- BGA Background Illumination, Attachable
- Focusing Stand, Coarse/fine movement, ESD-protected
- Precision XY-Translation Board, 25x25mm travel, incl. 2x Quick feed micrometer screws. ESD-Protected.
- OptiPix Full, image view, capture and measurement software incl. Calibration micrometer scale for BGA
- Annual service and support for Optipix (1 year)
- Brush Light, White LED with Dimmer and DC-adaptor
- Stand for Brush Light



### Delivery kit OP-019 155:

- Flexia Definition Digital, with 100x lens, ESD-protected
- Side Viewing BGA lens with Low Aperture 90° optical head
- 1-100x varifocal lens with built-in LED ringlight
- RingLight White LED for 100x Objective
- OptiPix Lite, image view, capture and basic on-screen measurement software
- Focusing Stand, Coarse/fine movement, ESD-protected
- Brush Light, White LED with Dimmer and DC-adaptor
- Stand for Brush Light



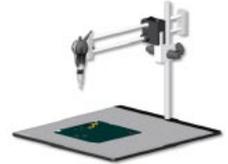
### Delivery kit OP-019 185:

- Flexia Definition Digital basic camera unit with 100x lens
- Side Viewing BGA lens with Low Aperture 90° optical head
- OptiPix Lite, image view, capture and basic on-screen measurement software
- Desk-top Holder, for Optilia Video Microscopes
- Brush Light, White LED with Dimmer
- Aluminum Transport Case with Foam inlet



## Optional accessories for Flexia BGA:

Extra large stand, ESD-protected



Precision XY-translation Board, ESD-protected



PCB holder, ESD-protected



OptiPix, Image Capture & Measurement software



USB Image capture foot-switch for OptiPix



Attachable BGA lens Background Illuminator



Digital Height Measurement kit



Aluminum Transport Case with Foam inlet (one levels)



Aluminum Transport Case with Foam inlet (two levels)



## Lenses and Illumination options for Flexia Definition Video Microscopes:

### Basic Flexia microscope unit:



Definition Digital **OP-019 191**  
 Definition Digital HM **OP-019 197**  
 Definition PAL **OP-019 001**  
 Definition PAL HM **OP-019 152**

100x lens is always included Flexia Definition

100x Objective lens **OP-019 400**

170x Objective lens **OP-019 113**

Fixed focal length Objective lenses replace 100x lens in order to get higher magnification

250x Objective lens **OP-019 114**

500x Objective lens **OP-019 116**

### BGA inspection lenses:

Side Viewing BGA Lens, Small Size, **OP-006 560**

Side Viewing BGA Lens, Low Aperture, **OP-006 550**



\* Optical Head for BGA lens, Small Size, **OP-006 561**



\* Optical Head for BGA lens, Low Aperture, **OP-006 551**

\* Items are spare parts

### Other compatible lenses and illuminations:



1-100x varifocal lens with built-in LED RingLight, **OP-019 407**



10-50x varifocal lens with Polarized LED RingLight, **OP-019 408**



Ringlight for 100x & 170x lenses, **OP-006 205**



Diffuse (contact) ringlight for 250x lens, **OP-006 205**



Diffuse (contact) ringlight for 500x lens, **OP-006 206**



Diffuser (contact) adapter for 100x lens, **OP-006 203**

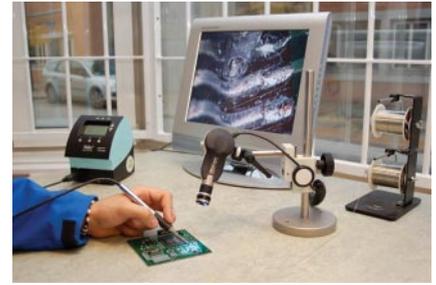


Diffuser (contact) adapter for 170x lens, **OP-006 204**

## Applications:

Optical inspection, digital image recording, software analysis and documentation of:

- ✓ solder joints of BGA,  $\mu$ BGA, CSP and Flip-Chip components
- ✓ SMT solder joints and wetting examination on assembled PCBs
- ✓ printed solder past and flux mixtures on PCBs (3-dimensional) also:
  - ✓ inspection of stencil apertures and pick & place heads
  - ✓ components, pads, cuts, scores, holes and wire-Bonds
  - ✓ connectors, cables, stripped wires and crimped terminals



## Specifications:

-  Digital Image Sensor ● Colour 2.0Mpixel CMOS (1600x1200) USB2.0 interface
- Magnification, Low-aperture BGA lens ● ~ 40x – 160x on 14" monitor (continuously variable)
- Focusing range, Low-aperture BGA lens ● ~ 12 – 1.5 mm
- Field of view, Low-aperture BGA lens ● ~ 6.8 – 1.7 mm
- Required working area, Low-aperture BGA lens ● ~ 1.5 mm free around BGA package
- Magnification, Small head BGA lens ● ~ 5x – 300x on 14" monitor (continuously variable)
- Focusing range, Small head BGA lens ● ~  $\infty$  – 0.5 mm
- Field of view, Small head BGA lens ● ~  $\infty$  – 0.5 mm
- Required working area, Small head BGA lens ● ~1.0 mm free around BGA package
- Magnification, Macro zoom lens ● ~ 1x – 60x on 14" monitor
- Focusing range, Macro zoom lens ● ~  $\infty$  – 8 mm
- Field of view, Macro zoom lens ● ~ 500 – 5 mm
- Integrated incident Illumination ● Built-in, long life white LED via micro prisms
- Integrated background Illumination ● Micro prisms with ultra bright, long life white LED source
- External background Illumination ● Brush-light with ultra bright, long life white LED source
- Storage Environment ● -10° – +60° C, Max 98% RH, non-condensing
- Operating Environment ● 0° – +45° C, Max 95% RH, non-condensing
- Power Source ● Powered via USB2.0 bus of the host computer
- Size/Weight Flexia BGA ● 165x50x36 mm (LxHxW). 200 g maximum
- Size/Weight Focusing Stand ● 240x240x230 mm(LxWxH), 2.4 kg maximum
- Size/Weight Brush Light Stand ● 110x250x215 mm( $\Phi$ xWxH), 1.6 kg maximum
- ESD Approval ● EN 100 015-01, IEC 61340-5-1, IEC 61340-5-2



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Web: [www.optilia.eu](http://www.optilia.eu)

Retailer:

Ordering information:	Item	Article Nr.
BGA Inspection Systems:	Optilia Digital BGA Inspection System, Exclusive, ESD-Protected	OP-019 156
	Optilia Digital BGA Inspection System, Standard, ESD-protected	OP-019 155
	Optilia Digital BGA Inspection System, Hand-operated, ESD-prot.	OP-019 185
Optional Accessories:	Side Viewing BGA lens with Small Size 90° optical head	OP-006 560
	Side Viewing BGA lens with Low Aperture 90° optical head	OP-006 550
	Small Size 90° Optical Head for BGA lens (spare part)	OP-006 561
	Low Aperture 90° Optical Head for BGA lens (spare part)	OP-006 551
	BGA Background Illuminator, Attachable	OP-006 420
	Brush Light, White LED, with DC-adapter	OP-006 180
	DC-adapter for Brush-Light (spare part)	OP-006 280
	Brush Light fibers with adapter (64 fibers)	OP-006 418
	Optipix Full, image view, capture & measurement software	OP-006 119
	USB Image capture foot-switch for OptiPix	OP-006 369
	Stand for Brush Light	OP-006 135
	Desk-top Holder, for Optilia Video Microscopes	OP-006 274
	PCB Holder, ESD-Protected	OP-006 202
	Precision XY-board, 25x25mm travel with Quick feed micrometers	OP-006 109
	Aluminum Transport Case, 450x350x150 with foam (two levels)	OP-006 047
	Aluminum Transport Case, 380x295x80 with foam (one level)	OP-006 191

