Optilia Instruments

Empowering Your Vision!

Product Review:

High Definition Inspection Cameras

New technology to replace microscope based inspection tasks!

Advantages over Traditional Ocular Microscopes

o **Less tiring** than looking under binocular based cameras / ocular microscopes

o **Longer working distances** no risk of board contact. Crucial for efficient assembly, reparation and rework

o **Auto focus optics** 'frees up' the hands and allows quick inspection of objects at different heights and magnifications

o **Larger depth of field** for easier and quicker work

o **Powerful optical zoom** 1x to 30x produces "large field" to "high magnification" images

o **Remote control** of magnification, focus, brightness, Iris etc. provides flexibility to different inspection objects and lighting conditions

o **Live image overlay** for displaying graticules, cross-line, zoom factor

o **Foot switch** allows hand free control of zoom image capture etc.

o **Full HD 1080p resolution** 60 fps video with no lag for easy optical inspection

Advantages over Stereo Microscopes

Performance	HD Video	Stereo Microscope
Ergonomic Inspection	Excellent	Poor
Large Working Distance	Excellent	Good
Large Depth of Focus	Excellent	Good
Large Field Of View	Excellent	Good

| Application	HD Video	Stereo Microscope
Optical Inspection	Excellent	Excellent
In-line Inspection	Excellent	Poor
Video / Image Recording	Excellent	Optional
Documentation	Excellent	Optional
Repair / Rework	Good	Excellent
Assembly Work	Excellent	Good

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Optilia High Definition Inspection Cameras

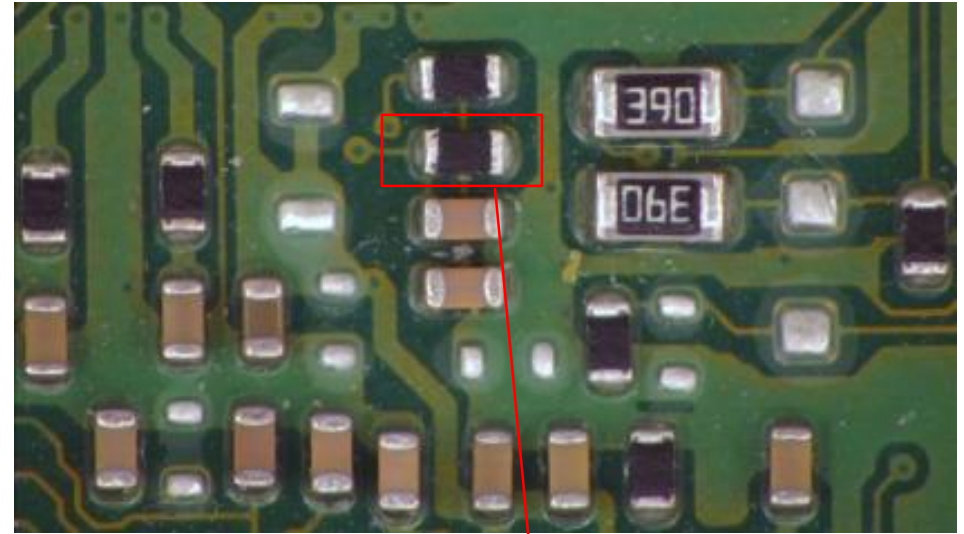| Product Features	M20X, EV/FS HD	M30X EV/FS Full HD	W10X Full HD	W30X Full HD	W30X, FS Full HD
HD Format Frame Rate	720p 60fps	1080p 60fps	1080i 720p 60fps	1080p, 720p 60fps	1080p, 720p 60fps
Image Sensor (Video)	¼" CMOS 1.4 M Pixels	1/2.8" CMOS 3.2 M Pixels	1/3" CMOS 2 M Pixels	1/2.8" CMOS 3.2 M Pixels	1/2.8" CMOS 3.2 M Pixels
Optical Zoom	20x	30x	10x	30x	30x
Max Magnification (with +10 lens)	~ 190X	~ 250x	~ 90x @ 1080p ~135x @ 720p	~ 250x @ 1080p ~ 350x @ 720p	~ 250x @ 1080p ~ 350x @ 720p
Standard Working Distance range	210-240 mm EV 350-500 mm FS	190-245 mm EV 350-500 mm FS	190-245 mm	190-245 mm	350-500 mm
Laser pointer	No	No	Yes	Yes	Yes
Auto Focus Speed	Very Fast	Fast	Very Fast	Fast	Fast
Remote Camera Control device	Yes Push button	Yes Push button	Yes Joystick	Yes Joystick	Yes Joystick
Controls	Zoom, Brightness Focus, colour, overlay	Zoom, Brightness Focus, colour, overlay	Zoom, Brightness Focus, Iris, shutter, colour, freeze, overlay	Zoom, Brightness Focus, Iris, shutter, colour, freeze, overlay	Zoom, Brightness Focus, Iris, shutter, colour, overlay, freeze
Control Software	No	No	Yes	Yes	Yes
Foot Switch	Yes	Yes	Yes	Yes	Yes

The most modern advances in camera technology and optical design

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Full 1080 HD vs. 720 HD

1080 HD (Full HD)
1920x1080 pixels
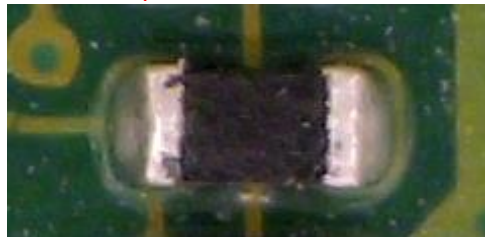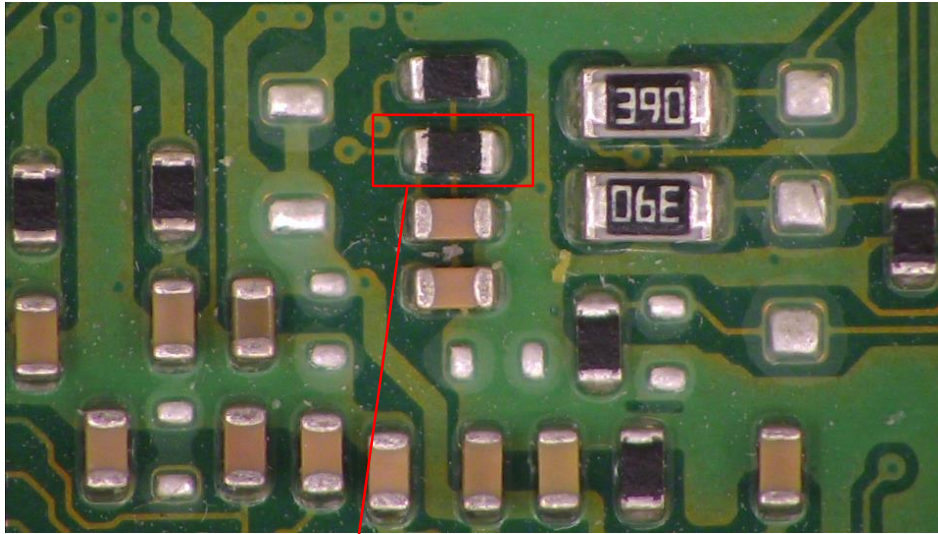
720 HD
1280x720 pixels

Higher resolution = More details

720HD

1080HD

720HD

1080HD
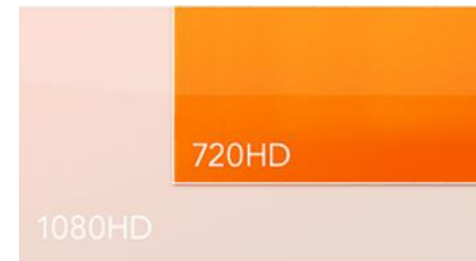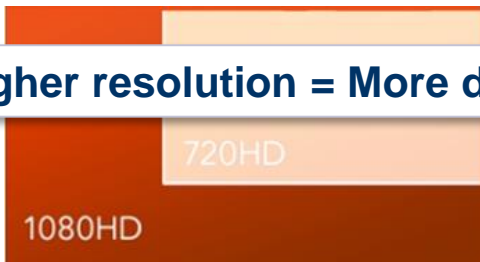
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Optilia HD Camera family

W30x (1080p, 60fps) Full HD 1080
W10x (1080i, 60fps) Full HD 1080

M30x EasyView (1080p, 60fps) Full HD 1080
M20x EasyView (720p, 60fps)

In-Line with XY-stand

W30x FreeSight (1080p, 60fps) Full HD 1080

M30x FreeSight (1080p, 60fps) Full HD 1080
M20x FreeSight (720p, 60fps)

Bench-top with XY-stand

HD TV/Monitor Sold Separately or Customer can purchase independently.
Optional Antistatic housing and/or IP65 housing available for M20x, M30x and W30x models.

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W30x 1080p Full HD Camera

Modular system with powerful 30x Zoom!

Full HD 1080

Best image quality with 60fps video output
Joystick Camera/Lens control and Laser Pointer
Optimized for image analysis and mearurement

Replaces your microscope!

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Sample picture

20x zoom with +5 close-up
RingLight LED Illumination

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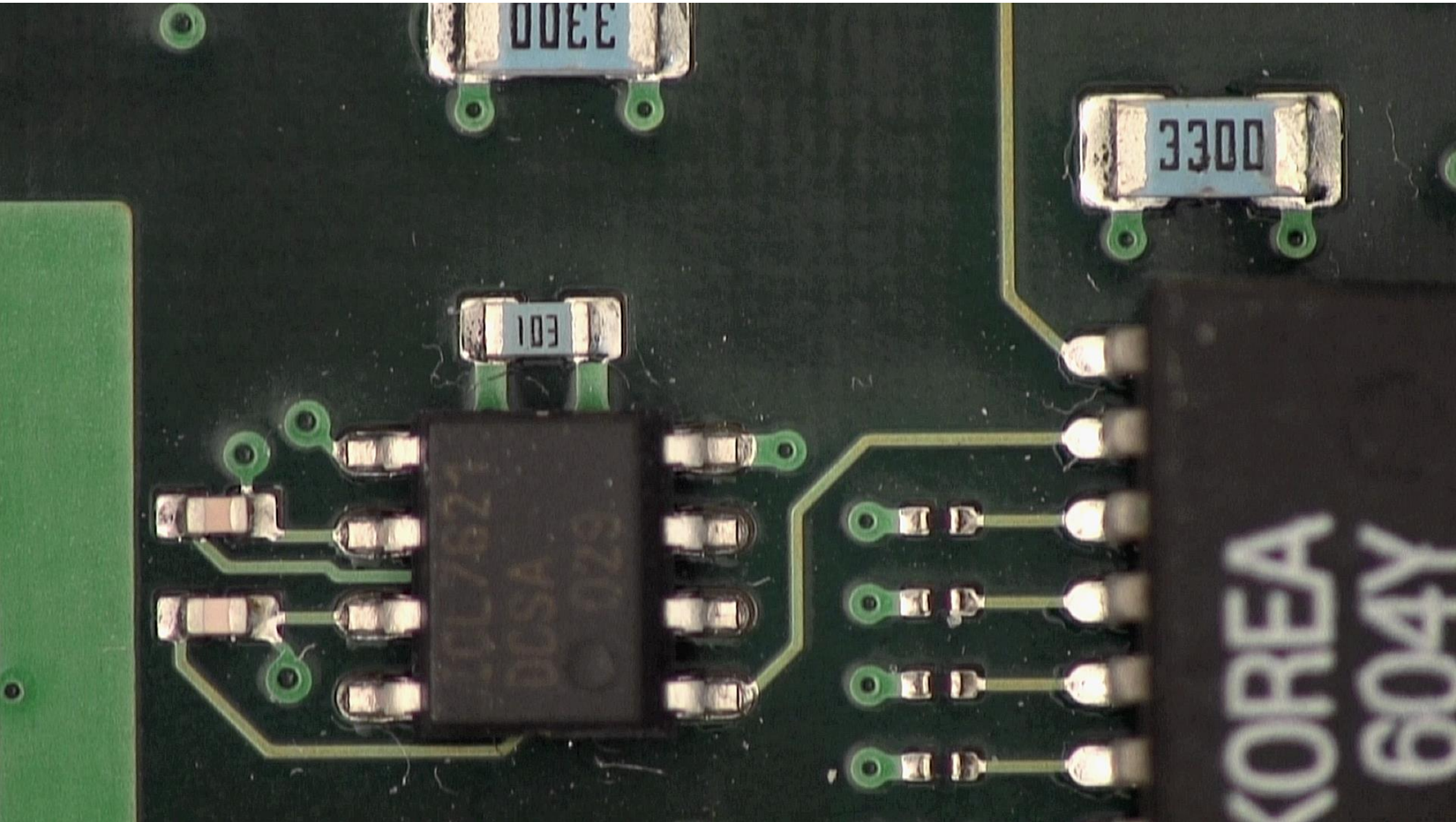# W10x 1080i HD Camera

Reliable, Robust and Long-life!

Full HD 1080

Rugged aluminum housing with integrated zoom buttons
Fast #F1.8 optics! Use it without extra illumination
Designed for highest quality and flexibility

**Optimised for
In-line inspection!**

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Sample picture

10x zoom, standard lens
Ambient light

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M30x EasyView, 1080p Full HD Camera
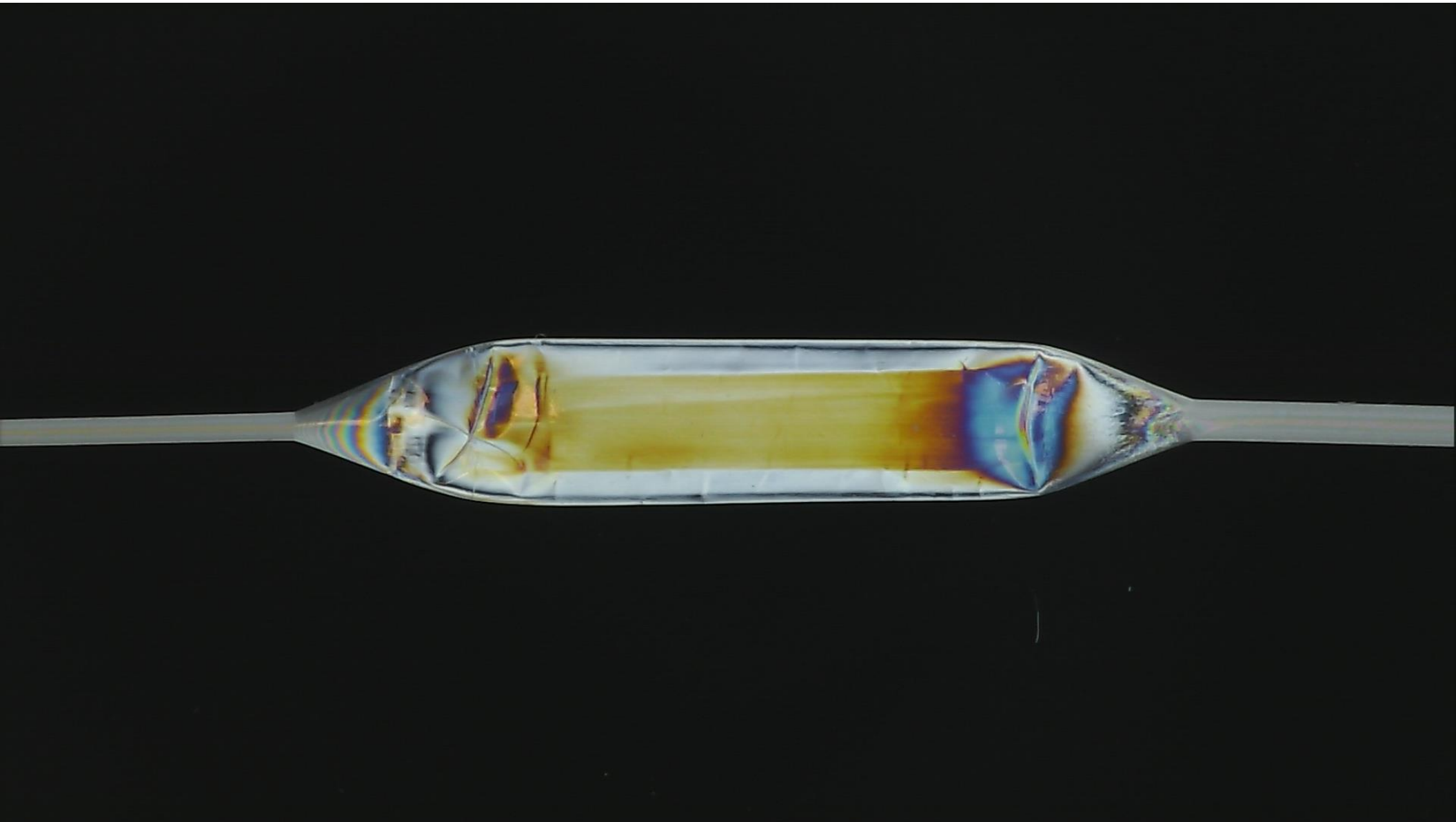
Exceptional Performance-to-Price ratio!

Full HD 1080

Crisp Full HD video with powerful 30x optical Zoom
Easy to setup and to operate
Optimised for professional optical inspection

For all kind of Optical Inspection!

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Sample picture

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M20x EasyView, 720p HD Camera

Plug & Play, All Inclusive!

High frame rate, crisp HD video
Easy to setup and to operate
The most cost effective professional HD inspection

**For all kind of
Optical Inspection!**

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Sample picture

20x zoom with +5 close-up
RingLight LED Illumination

FreeSight W30x, M30x and M20x Cameras

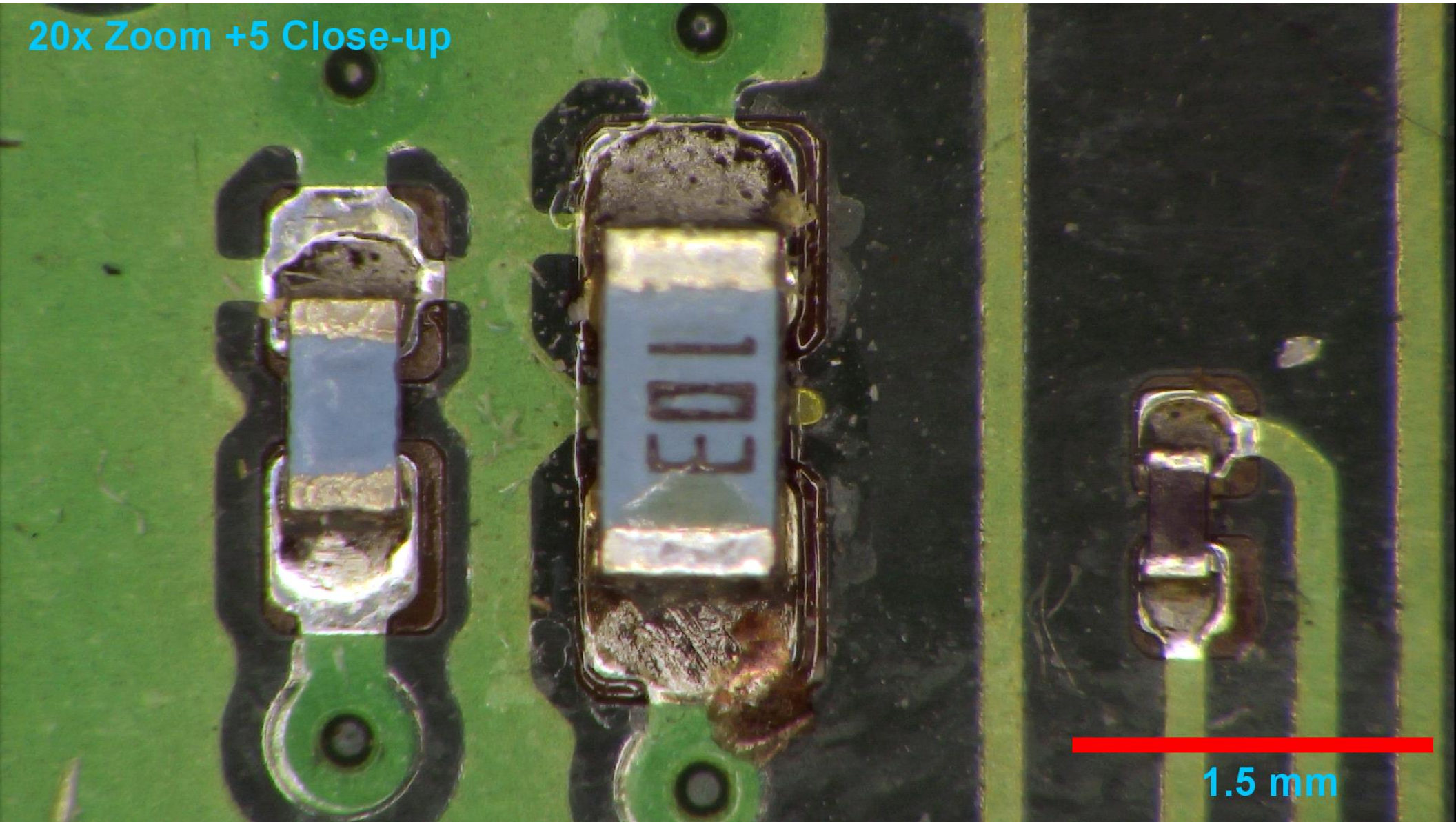**Extended 350 to 500 mm working distance !**

Clutter-free working space with clear viewing of the monitor
Excellent Depth of Field
Maximum comfort ergonomics

For assembly, rework and reparation!

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Sample picture

20x Zoom +5 Close-up

1.5 mm

20x zoom with +5 close-up
RingLight LED Illumination

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Remote Camera Control

- Remote Control of **Magnification, Brightness, Iris, Shutter, Colour, Focus** etc.
- Add-on software for **Cross Line** overlay and **Zoom factor** display.
- 2 preset configurations can be saved in memory and re-called!
- PC Control Software available for W10x and W30x cameras.
- Optional Foot Switch for "Hand-free" control of Magnification, Brightness and Focus!
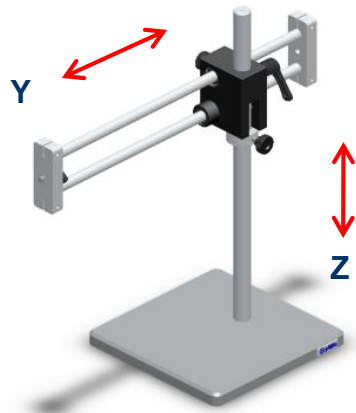

Joystick advance control
W30x
W10x

Basic control
M30x
M20x
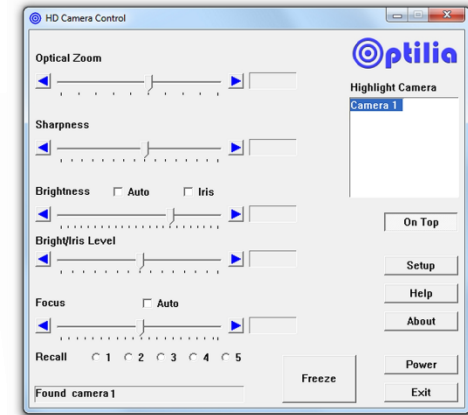
PC software full control
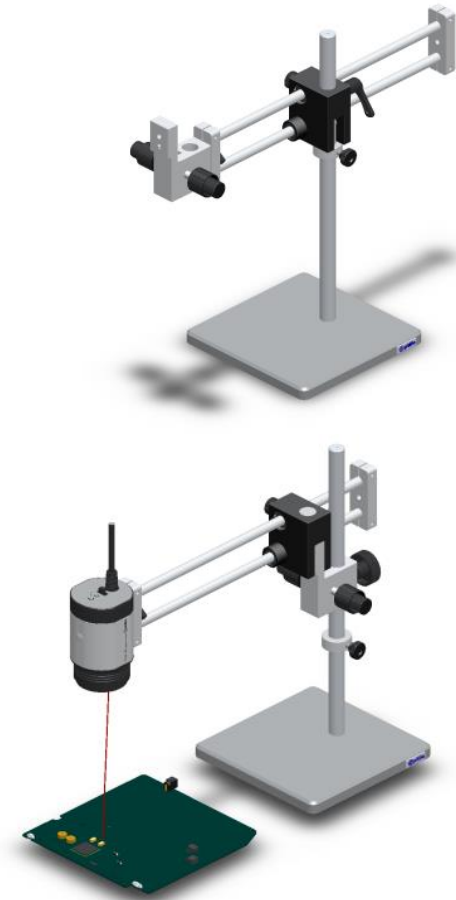W30x
W10x

Double-rod Boom Stand

Double-rod Boom

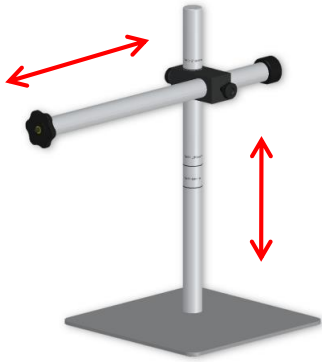**Rack & Pinion**

Y

Z

+

=

OP-006-199

OP-006-334

Robust and stable stand with 300mm Y-Z-travel as standard!
Up to 600mm travel at request!
Compatible with optional Coarse/Fine Rack & Pinion Unit for precision manual focusing of camera!

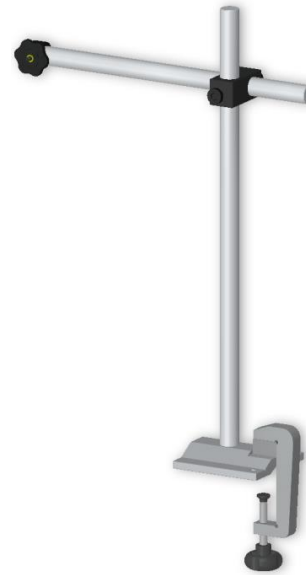©ptilia

Single-rod Boom Stands

Single-rod Boom

with Height extender

Table Clamp

Wall mount

OP-006 660
Multifunction, easy-to-use!

OP-006 660
OP-006 661
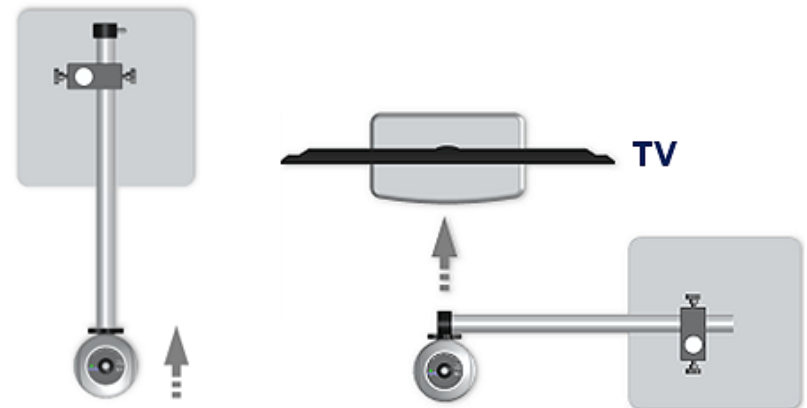
OP-006 662
Recommended for W30x FreeSight.

OP-006 663
For best image Stability!

The Camera can be mounted straight or at 90° angled position!

TV

4-directional tilt unit
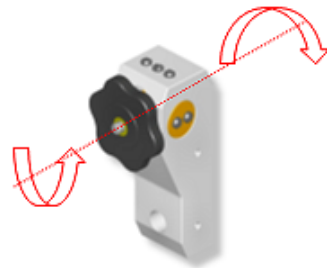
Camera Tilt device For Double-rod Boom and XY-stands

OP-006-199 **+** OP-006-334 **=** **X ,Z, 4 Tilt- Axes**
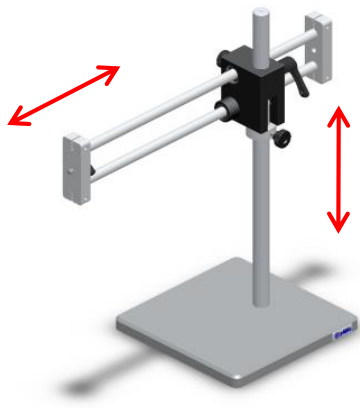
25 degree all Tilt-Axes

Camera Plus 4- Direction Tilt Unit provides the greatest flexibility for Side Inspection of objects.

Focusing Stand

Microscope stand with precise rack & pinion vertical travel!

OP-006 201

For precise Focus Adjustment at High Magnifications!
Good option for W30x/M30x with extra Close-up lens and RingLight

Sample picture

20x zoom with standard lens
Ambient light

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Gantry, large working area XY-Stand
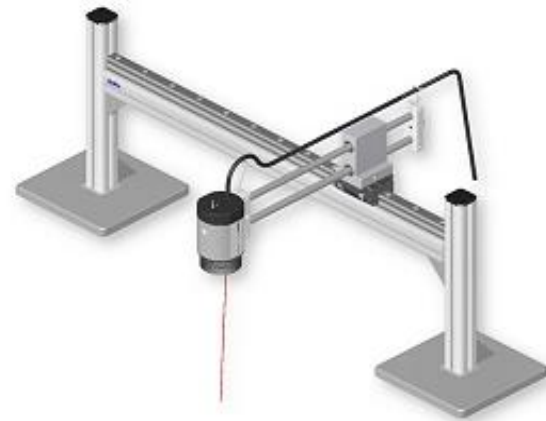
In-Line

Bench-top

For non-contact safe inspection. XY stand is mounted over conveyors or inspection area and allow inspection without moving or touching the board. Up to 1000mm XY-travel over inspection object!

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In-line large working area XY-Stand

The Camera positioned over conveyor after Pick & Place

Weight less Parallel Arm

Long-reach solution for ultimate flexibility!

OP-006 328

X,Y, Z and free Tilt-Axes

920 mm working range!
With articulating knuckle and lockable gas springs.

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Optional Close-up Lenses
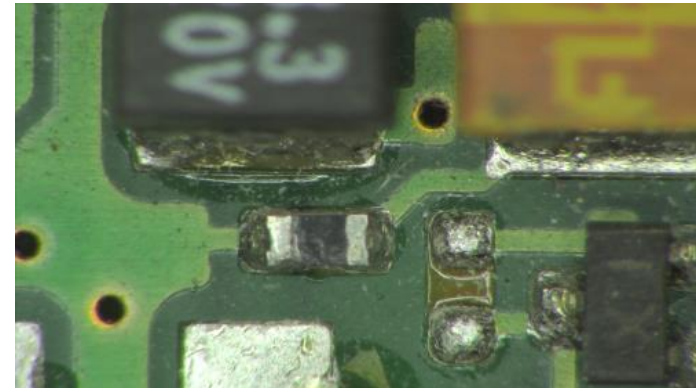

+2 Dioptre
~ 1.5x more Mag.

+5 Dioptre
~ 2.2x more Mag.

+10 Dioptre
~ 3.2x more Mag.

W10x, standard lens

W10x, standard lens +5 Close up

Specially designed for best Colour and highest Image Quality!
Several Close-up Lenses can be stacked for more optical power!

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Illuminations and Filters

- **White Ring Lights 40 or 80 LEDs 65 to 500mm Working Distance**

- **UV Florescent Ring Light.**

- **Coaxial Incident Diffuse LED light.**

- **Bright Field Polarized LED Illumination Kit with Rotatable Analyzer.**

- **Dark Field LED Illumination Kit.**

- **Double Arm Spot-Light.**

- **Polarizer Filters, Diffusers, Lens Protection filters.**

Double Spot-light

White Ring Lights 40 LED **UV Ring Light** **Coaxial incident** **Bright field with Pol.** **Dark field**
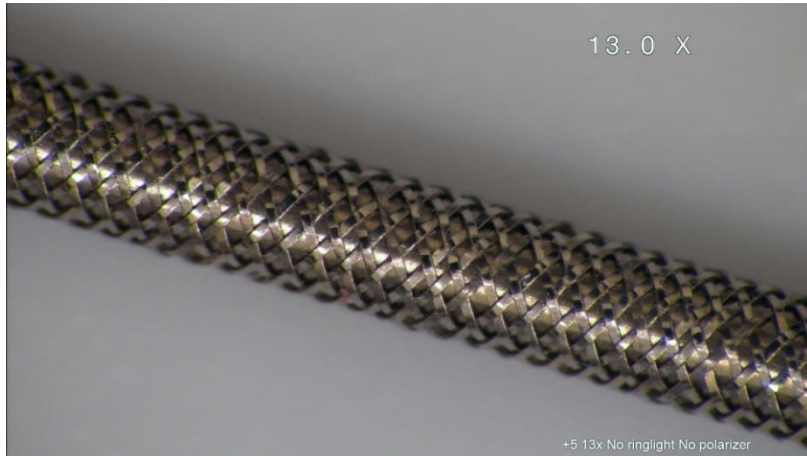
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Illuminations effect on Object!

13x Zoom +5, Ambient office light!

20x Zoom +5, with Ring light & Polarizer!
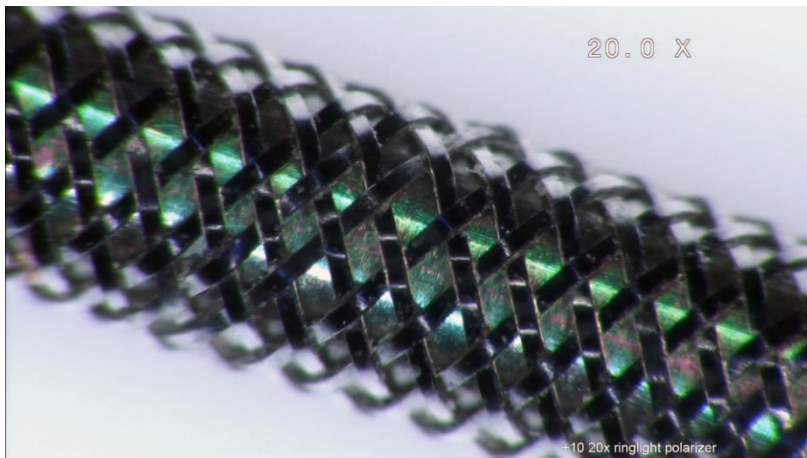
20x Zoom +10, with Ring light & Polarizer!
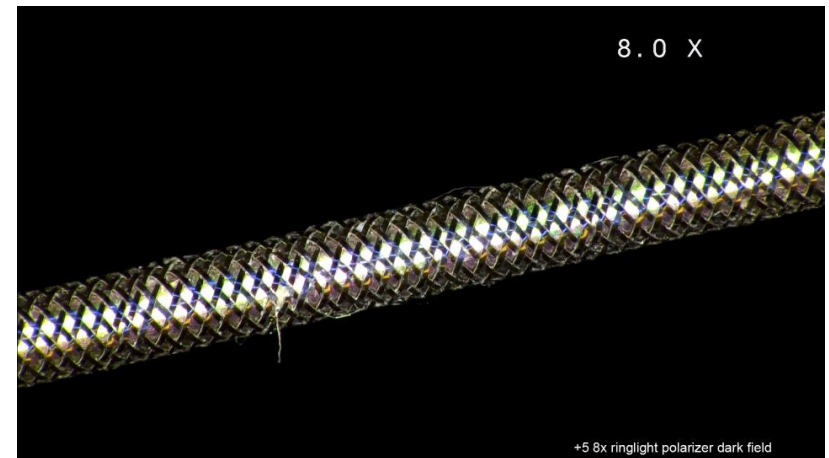
8x Zoom +5, with Dark Field & Ring light!

All images taken by W30x-HD, same sample
Tube ϕ1.65 mm

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Accessories, XY-boards

Linear Floating XY-Translation Stage, equipped with thick static dissipative top matting.

X-travel • 450 mm
Y-travel • 300 mm
Size of antistatic surface • 420x330 mm
Maximum height • 42 mm

Can also be ordered with electromagnetically **Position Locking** system.

Accessories, All directional Tilt Table

Facilitates examination of inspection objects from different directions

Size of antistatic board • Ø 250mm
Maximum tilt angle • 30 degrees
Maximum height • 130mm
Surface material • ESD-protective mat

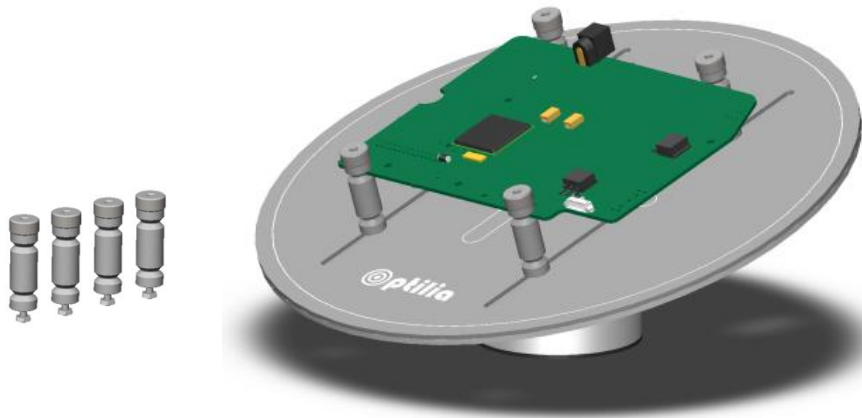Can also be ordered with electromagnetically **Position Locking** system.

Capture and Measurement with PC / Laptop

1080HD Frame grabbers with Software

Recommended PC's

PCI-e

USB3.0

Minitower/Tower:
HP PRO Desk 600 W7/8

Small size:
Fujitsu ESPRIMO CI5 Win7/8P

Laptop:
HP Pro Book, Intel i5, 15.6" HD+
MSI, Intel i5, 15.6" Full HD

Software

OptiPix - Version:
Copyright © 2010 - Optilia Instruments AB

Image View, Capture and Measurement Software

Optilia Instruments AB

OP-006 120, Opti*Pix* Lite. Display/Capture/Line measurement
Included in Frame Grabbers.

OP-006 119, Opti*Pix* Full. Display/Capture/Geometrical
Measurements/Overlay
Micrometer Calibration Scale included.

OP-006 121, Opti*Pix* Full with Database. Display/Capture/
Geometrical Measurements/Overlay/Database/Reporting.
Micrometer Calibration Scale included.

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Capture Full HD Digital Image without PC

Capture 32 GB of Full HD still pictures on removable SD-card

Only Full HD 1920x1080 external capture device on the market!

- HDMI output
- Dual picture display via USB output as reference
- Overlay lines, patterns, annotations or CAD drawings on live image "Digital Graticule"
- Foot switch for hand-free operation

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Sample calibrated pictures in OptiPix
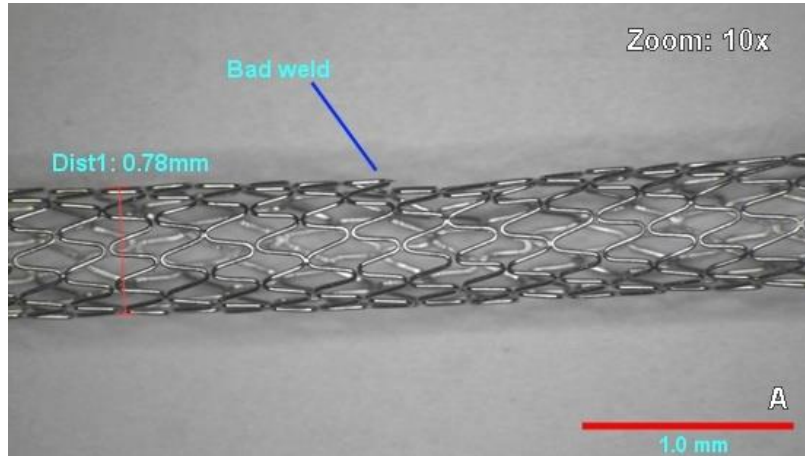
W30x with **+10 macro**, 10x zoom, A
Incident RingLight
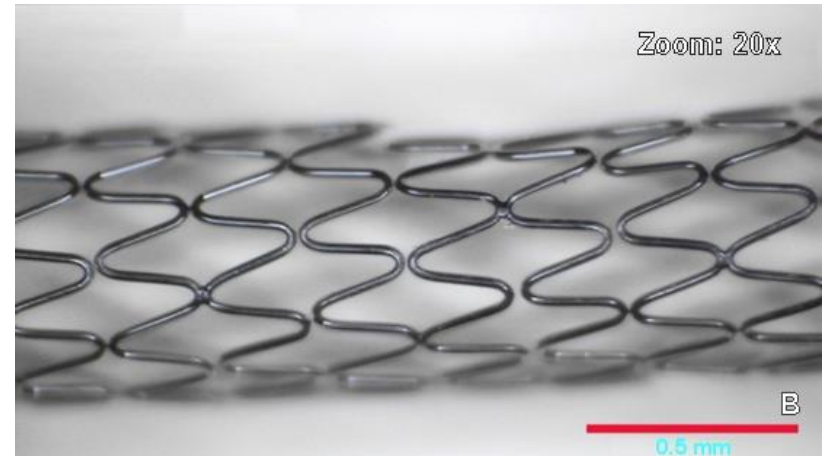
W30x with **+10 macro,** 20x zoom, B
Incident RingLight

W10x with **+5 macro**, calibrated in OptiPix
Incident RingLight

W10x standard lens
Bright Field Polarized Illumination

Sofware – OptiPix Lite, Full or DataBase version?

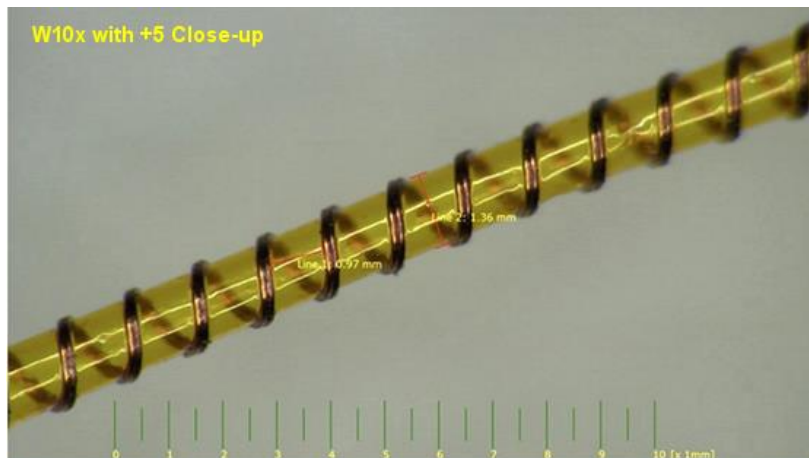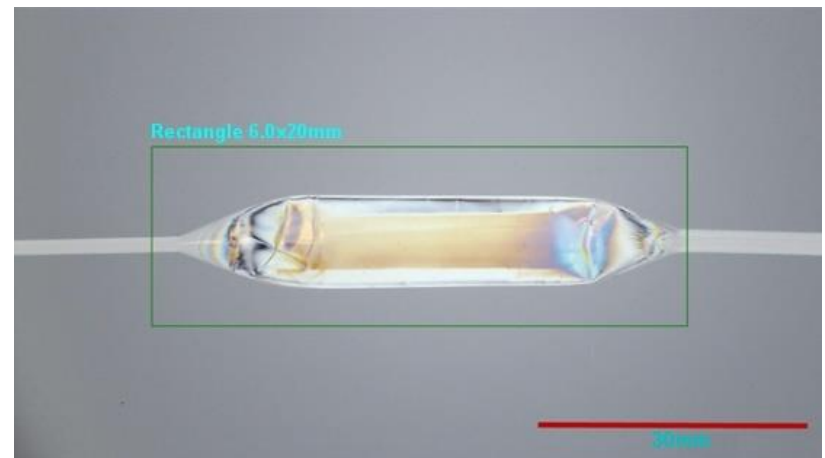| OptiPix Feature	Lite	Full	Data base
Database management			
Encrypted Databse			O
Case Management			O
Advanced Search and Sort			O
Create Automatic Reports in pdf			O
Archiving			
File Folder System Management	O	O	O
Open/save Images with Calibration	O	O	O
Device			
Image Capture	O	O	O
Adjust Properties	O	O	O
Adjust Resolution	O	O	O
User-defined Magnification	O	O	O
View			
Freeze Image	O	O	O
Compare Image (live and freezed)		O	O
Image manipulation			
Contrast, Brightness, Color contr.		O	O
Flip images Vertically/Horizontaly	O	O	O

OptiPix Feature	Lite	Full	Data base
Calibrated Measurements			
Calibrate user-defined Magnifications	O	O	O
Distance Measurement	O	O	O
Circle and Polygon Measurement		O	O
Angle and Curve Measurement		O	O
Free-form Area, Length and Perimeter		O	O
Count Objects		O	O
Overlays on Live Image			
Adjustable Grid, Crosshair	O	O	O
Adjustable Rectangle		O	O
Calibrated Ruler		O	O
Digital Graticule overlay		O	O
Others			
Annotations on Image	O	O	O
Change item Size, Color, Font	O	O	O
Color Mapping, B/W Conversion		O	O

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Optilia Advantages over Competitors

o **Best image quality and true colour** resulting from Optilia´s superior optics and SONY´s Exmor ® image sensor, facilitating more accurate and reliable inspection tasks

o **Fast Autofocus** allows quick inspection of objects at different heights and magnifications

o **Extended 500mm working distances** in Optilia´s FreeSight models provides clutter-free working space with clear viewing of the monitor

o **Full HD 1920x1080 still image capture** with Optilia´s unique SD-card Capture Device for documentation and communication

o **Dual display of still reference image and live image** of inspected object using Optilia´s unique SD-card Capture Device

o **Live Image Overlay** utility for superimposing custom made soft Graticules, Test patterns, CADs, and Scales allows simple and quick dimensional control and geometrical measurement of inspecting parts

o **Modular Camera System Design with SDK** for system integration and flexibility for adaptation according to customer´s needs

Pricing

Product Name	Product No.	Price (Ex Works)
M20x-HD EasyView with Basic Control Unit and Single-rod Boom Stand	OP-109 011	E-mail
M30x Full HD with Basic Control Unit and Single-rod Boom Stand	OP-109 012	E-mail
W10x Full HD with Control software and Double-rod Boom Stand	OP-009 002	E-mail
W30x Full HD with Advanced Joystick Control Unit and Focusing Stand	OP-209 002	E-mail
In-Line W30x incl. XY-stand and remote Control PC software	OP-209 010-IN	E-mail
Bench-top W30x incl. XY-stand and remote Control PC software	OP-209 010-BT	E-mail

Optional accessories	Product No.	Price (Ex Works)
Full HD 1080p SD-Card Image Capture Device	OP-009 080	495 €
USB3.0 HD Frame Grabber with OptiPix Lite software	OP-006 310	495 €
OptiPix Full measurement and analysis software , including 0.1mm pitch Calibration Micrometer Scale	OP-006 119	890 €
Close-up lens +5 diopter (f=200mm)	OP-009 305	345 €
White Ring-Light set, 40 LEDs, Segment control with Dimmer	OP-006 385	645 €

Upgrade to FreeSight, 500mm working distance for 455 € surcharge.
Upgrade to ESD-protected products for 250 € surcharge.
Upgrade to IP-64 hermetically sealed housing for 350 € surcharge.