OPTIKA®
MICROSCOPES
ITALY

B-290 Series

Educational & Routine Lab Upright Microscopes

Best Value-for-Money Solution and Versatile Use

SUITABLE FOR TEACHERS, EXPERTS & ROUTINE LAB

» One of the most flexible microscopes in the world
» For secondary school, higher education and laboratories
» Ideal for education, biology, histology

PRICE/PERFORMANCE RATIO

» Binocular and trinocular heads with 20mm field number
» N-PLAN objectives for high numerical apertures and flat images
» Convenient, rackless moving stage to prevent scrapes

B-290TB - A Completely New, Revolutionary Experience

BREAK NEW GROUND WITH TABLET PC

» Get accurate, dependable results in one click
» Equipped with the most reliable OS, Windows 10
» Holding solution for open discussion, 360° rotating and tilting

OPTIMUM AND UNPARALLELED COMFORT IN USE

» Large touch screen of 10.1" with fast, responsive and smooth control
» Easily detachable, can be used as a laptop (keyboard included)
» Simultaneous camera and power connection for long-term operation

X-LED³ - Exclusive Lighting Source

POWERFUL AND UNIFORM ILLUMINATION
» Unmatched colour fidelity and brightness of your specimen
» Special technology, able to double the light intensity
» Constant pure-white colour temperature (6,300 K)

CUT ELECTRICITY BILLS BY 90%
» Money & energy saving
» Low power consumption, only 3.6 W
» LED long lifetime (65,000 hours = 25 years at 8 hours/day usage)

IOS - Infinity Optical System

LABORATORY GRADE OPTICS
» Planachromatic optics with more than 90% flat field
» Optimum quality on 20 mm field (N-PLAN)
» True infinity optical system

A COMPLETE SYSTEM
» Optional 20x and 60x objectives available
» Use the polarizing set without any distortion of the final image
» Fully centerable condenser for precise light control

Icons

- Binocular
- Trinocular
- Inclined head
- Field number
- Rotating head 360°
- Infinity-corrected optics
- Max. magnification
- Anti-fungus treatment
- Transmitted light
- Polarized light
- X-LED illuminator
- USB connection
- Tablet screen size
- Camera resolution
- Software included
- HDMI Output
- MicroSD card
- Bluetooth

B-290 Series

X-LED³ Exclusive Lighting Source

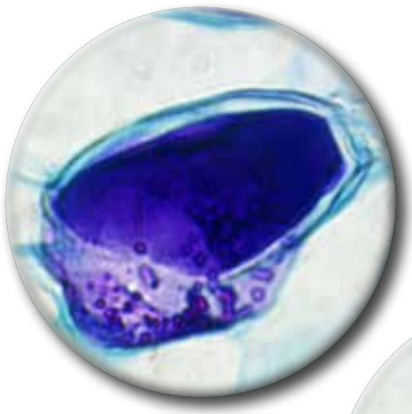
Special technology able to double the light intensity for incomparable performance, ensuring constant pure-white colour temperature (6,300K colour temperature).
Relevant money and energy saving thanks to the incredibly low energy consumptions which allows you to cut the electricity bills by 90%!

Safe And Convenient Operations

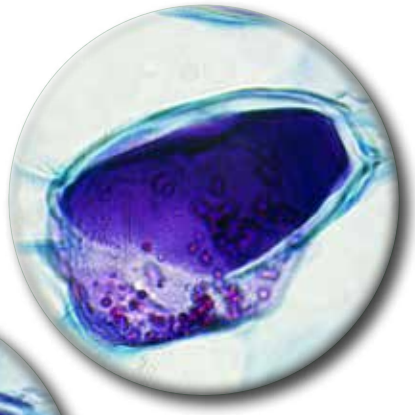
The rackless stage has been designed with a belt-driven mechanism that allows a smooth movement without any protruding part.
This design gives you a more compact solution and lowers any risk of injury after accidentally hitting the rack with your hands.

Clear Observation With 100x Objective

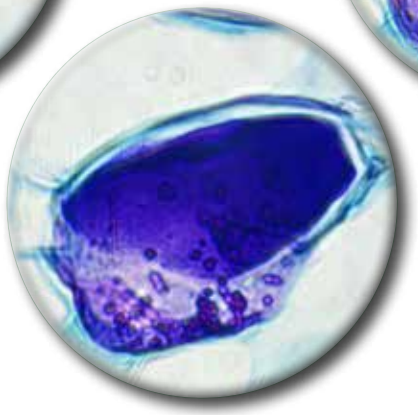
Students and basic users will enjoy B-290 Series for the clear and sharp images they can get using 100x objective with water, thanks to the extremely bright X-LED³ light source and the fully centerable Abbe condenser. Forget about the tedious lens cleaning you are used to when using 100x objective: dirt and dust will not affect your objective.



100x DRY



100x OIL



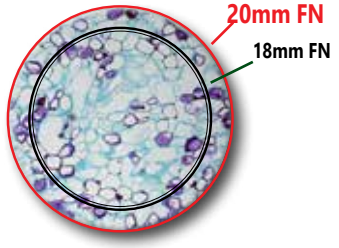
100x WATER

Pine, one year stem.

For a professional use, immersion oil is the recommended solution to get the best performance available from any 100x objective.

Educational & Routine Lab Upright Microscopes

Laboratory Grade Optics, N-PLAN & IOS N-PLAN System
OPTIKA N-PLAN objectives ensure bright, clear images with excellent flatness and compensation for chromatic aberration. IOS Infinity-corrected optical system prevents image deterioration even if other optical components are added, such as polarizers, beamsplitters and so on.



Large Specimen View (20 mm Field Number)
The **F.O.V.** (field of view) is based on a comfortable diameter of 20 mm. This means that a wide area of the sample can be inspected and allows a natural and easy view, particularly needed in a laboratory environment.

Easy Transportation
B-290 has a carefully shaped design that gives stability and ease in the transportation. Thanks to the handle on the back, it can be safely moved around the classroom or the laboratory.

Optimum And Unparalleled Comfort In Use
The B-290TB offers you a unique, incomparable solution, including a built-in camera of 3MP and a Windows tablet with large touch screen, for a responsive and smooth control.
Simultaneous camera and power connection ensure long-term operation, with dependable results in one click. It offers a reliable and comfortable solution for open discussion, with 360° rotating and tilting tablet, easily detachable, that can be used as a laptop.

Get the most out of our accessories

M-666.290
Heating stage
Use the temperature controlled heating stage for specific applications where accurate temperature selection up to 50° C and programmable settings are needed. Requested in research arenas such as microbiology, biochemistry, material science, pharmacology, crystallographic characterization, surface quality control, and in all the temperature related inspections.

M-184
Darkfield condenser
With optional diaphragm M-184 you can easily obtain a darkfield view for dry objectives.
M-184 can be placed directly under the condenser without the need of additional operations.

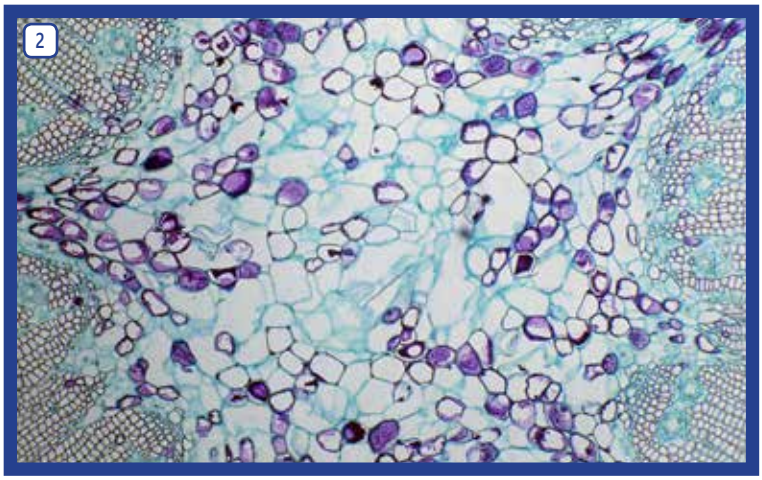
B-290 Series

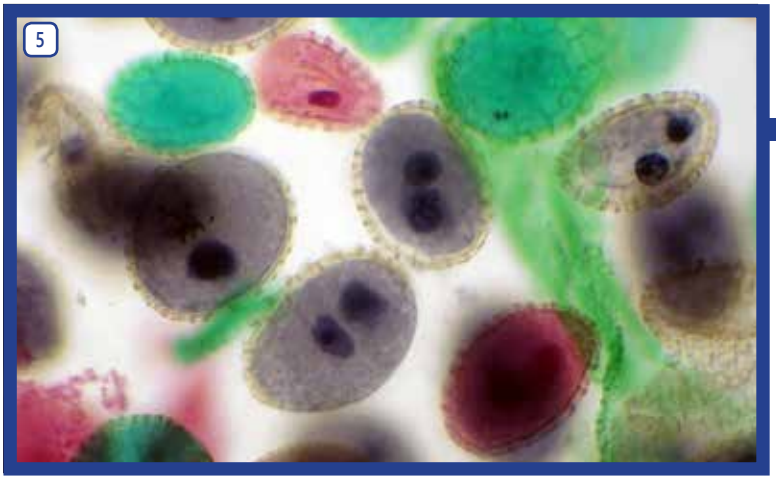
Applications

Some application examples showing the extreme versatility of B-290 Series. Application in education, biology, botany and simple material analysis, where all the samples are mounted on standard glass slides.

Legend

1. B-290TB with 360° rotating tablet PC for discussion.
2. Pine, one year stem, with B-292 and 10x objective.
3. B-290 Series exclusive X-LED^3 illumination system.
4. B-293 used by a teacher.
5. Lilly pollen, with B-292PLi and 20x objective.
6. Ascaris female, with B-293 and 40x objective.
7. Student setting the right focusing on a B-290TB.





B-290 Series - **Overview**

This series incorporates all the experience gathered by OPTIKA Microscopes in the field of light microscopy, adapted specifically for routine laboratory brightfield applications. These microscopes are suitable for routine microscopy and have an ergonomic design for comfortable long-term use.
All main controls are located close to each other, which enable operation with minimal movements.

Observation mode:
Brightfield, polarized light.
Heads:
B-292 models:
Binocular, 360° rotating and 30° inclined.
B-293 models:
Trinocular, 360° rotating and 30° inclined.
B-290TB:
Digital model, binocular with camera and 10.1" tablet, 360° rotating and 30° inclined.
Interpupillary distance:
B-290TB/B-292 models: Adjustable between 48 and 75 mm.
B-293 model: Adjustable between 55 and 75 mm.
Dioptric adjustement:
On the left eyepiece tube.
Eyepieces:
WF10x/20 mm.
Nosepiece:
Quadruple revolving nosepiece, rotation on ball bearings.
Objectives:
N-PLAN or IOS N-PLAN optical system (on PLi models) with an anti-fungus treatment. Different magnifications available.
Specimen stage:
Double layer rackless mechanical sliding stage, 150x139 mm, 75x33 mm X-Y movement range. Vernier scale on the two axes, accuracy: 0.1 mm.
Focusing:
Coaxial coarse and fine focusing mechanism with limit stop to prevent the contact between objective and specimen.
Adjustable tension of coarse focusing knob.
Condenser:
N.A 1.25, centerable, adjustable height.
Illumination:
X-LED^3 type with white 3.6 W LED and light intensity control.
Color temperature: 6,300 K.

B-290 Series - Range

B-292

Binocular head with **N-PLAN objectives**, **rackless stage** and **exclusive X-LED³** for **unmatchable performance, powerful and uniform illumination**.

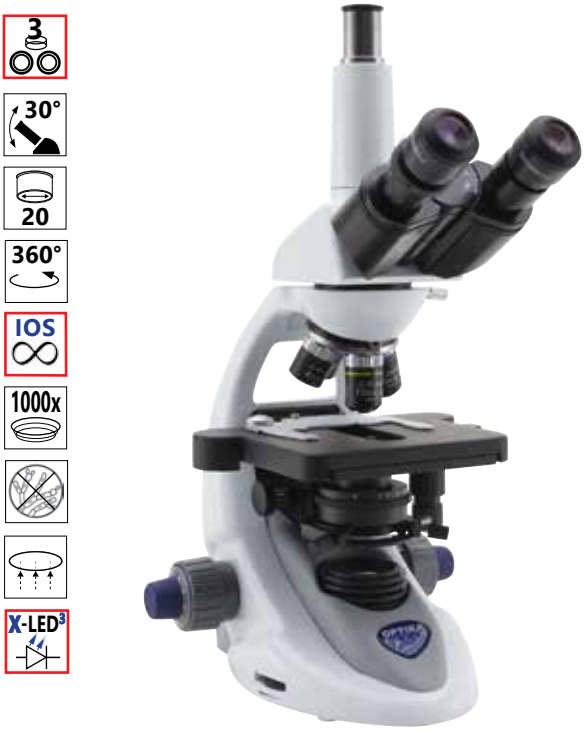
B-292PLi

Binocular head with **IOS N-PLAN** (**infinity corrected**) **objectives**, **rackless stage** and **exclusive X-LED³** for **incredibly bright illumination**.

B-293

Trinocular head with **N-PLAN objectives**, **rackless stage** and **exclusive X-LED³** for **unmatchable performance, powerful and uniform illumination**.

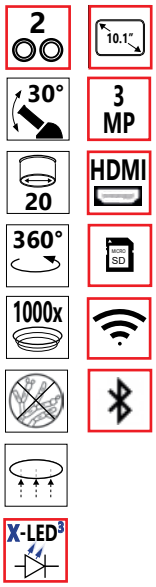
B-293PLi



Trinocular head with **IOS N-PLAN** (**infinity corrected**) **objectives**, **rackless stage** and **exclusive X-LED³** for **incredibly bright illumination**.

B-290 Series - Range

B-290TB



3MP Built-in camera and **10.1" Windows tablet PC** with **N-PLAN objectives**, rackless stage and **exclusive X-LED³** for **unmatchable performance in illumination**. Ideal for discussion group with 360° rotating tablet.

B-290 Series - Optical performance

Optical performance B-292, B-293 and B-290TB

Eyepiece			10x (M-160)		15x (M-161)		20x (M-162)	
Field number (mm)			20		16		10	
Objective	N.A.	W.D (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
4x (N-PLAN 160 mm)	0.1	15.2	40x	5	60x	4	80x	2.5
10x (N-PLAN 160 mm)	0.25	5,5	100x	2	150x	1.6	200x	1
20x (N-PLAN 160 mm)	0.4	5	200x	1	300x	0.8	400x	0.5
40x (N-PLAN 160 mm)	0.65	0.45	400x	0.5	300x	0.4	800x	0.25
60x (N-PLAN 160 mm)	0.8	0.13	600x	0.33	900x	0.26	1200x	0.16
100x (N-PLAN 160 mm)	1.25 (oil)	0.13	1000x	0.2	1500x	0.16	2000x	0.1

Optical performance B-292PLi and B-293PLi

Eyepiece			10x (M-160)		15x (M-161)		20x (M-162)	
Field number (mm)			20		16		10	
Objective	N.A.	W.D (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)	Total magnification	Field of View (mm)
4x (N-PLAN IOS)	0.1	16.8	40x	5	60x	4	80x	2.5
10x (N-PLAN IOS)	0.25	5.8	100x	2	150x	1.6	200x	1
20x (N-PLAN IOS)	0.4	5.1	200x	1	300x	0.8	400x	0.5
40x (N-PLAN IOS)	0.65	0.45	400x	0.5	300x	0.4	800x	0.25
60x (N-PLAN IOS)	0.8	0.14	600x	0.33	900x	0.26	1200x	0.16
100x (N-PLAN IOS)	1.25 (oil)	0.13	1000x	0.2	1500x	0.16	2000x	0.1

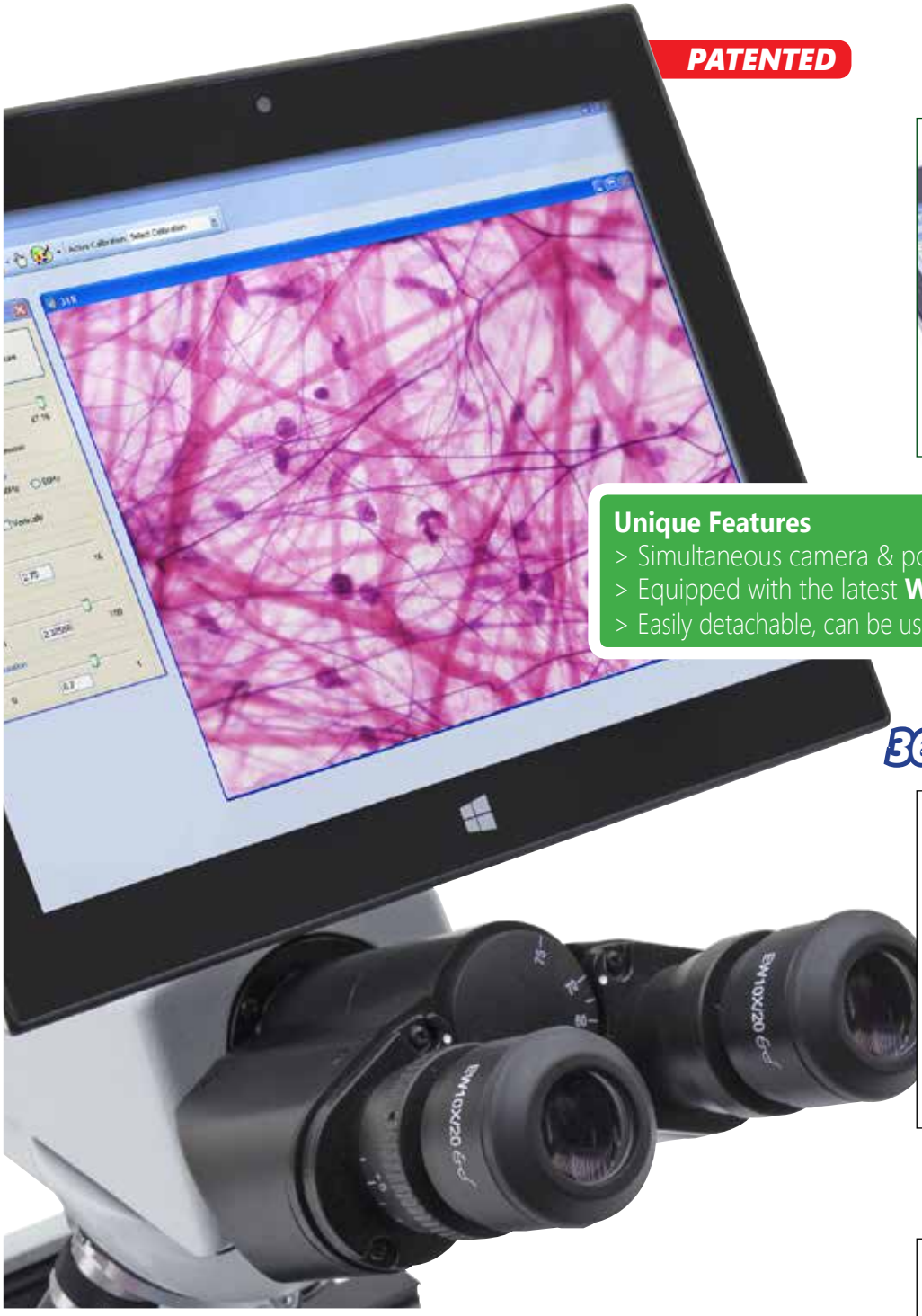
B-290TB - Digital microscope with camera and tablet

The latest OPTIKA digital microscopes with Windows tablet PC open new microscopy horizons, combining high-end optics with innovative digital technology for microscopic imaging. B-290TB includes a 3MP camera with a 10.1" Windows tablet.
View, capture, analyze and share your images with simplicity and reliability.

Intuitive, Yet Powerful Software

Simple and user-friendly, ideal for students and experienced users.

PATENTED



Unique Features
> Simultaneous camera & power connection
> Equipped with the latest **Windows OS** & **Intel** processor
> Easily detachable, can be used as a laptop (keyboard included)

360° Rotating & Tilting

Detachable

BREAK NEW GROUND WITH TABLET PC
» Get accurate, dependable results in one click
» Holding solution for open discussion, 360° rotating and tilting
» Large touch screen of 10.1" with fast, responsive and smooth control

B-290TB - Digital microscope with camera and tablet

TABLET TECHNICAL SPECIFICATIONS	
Model	Tablet 10.1"
Operating System	Windows 10 64-bit
Language	Multilanguages already installed
Image capturing software	OPTIKA Vision lite
CPU	Intel® Atom™ Z830, Quad core
CPU speed	1.92 GHz
Graphics Card	Intel® HD Graphics GEN8-LP 10/12 EU
Memory	Ram 4 GB LPDDR3
LCD display	LED 10.1" IPS Multi Touch Screen
LCD resolution	1920x1080, 16/9 Full HD
Storage	Hdd 64 GB
Network	Wireless, Bluetooth 4.0
Input/output ports	USB - Microphone - Micro SD card reader - Micro HDMI - Headphone
Control Buttons	Auto rotate off, volume control
Battery Technology	Lithium-ion battery
Battery capacity	6500 mAh
Max load	18 W
Dimensions	Thickness 8.5 mm, Height 16.7 cm, Width 26.1 cm
Weight	560 g
Cables included	OTG cable (Micro USB-B to USB-A)
Also included	Instruction manual, Keyboard with touchpad, touch pen.

CAMERA TECHNICAL SPECIFICATIONS	
Digital camera resolution	3 MP
Signal output	USB 2.0
Sensor Size	1/2.5"
Sensor technology	CMOS
Image format	4\3
Full Image size	2048 x 1536
Pixel size	2.2 x 2.2 micron
Frame rate full resolution	5 frames\sec
Frame rate other resolutions	8 fps (1280x1024) - 30 fps (640x480)
Automatic White Balance	Auto - Man
Automatic Gain Control	Auto - Man
Automatic Back light control	Auto - Man
Exposure control	Auto - Man

B-290 Series - Comparison chart

Model	Head	Eyepieces	Nosepiece	Objectives	Stage	Focusing	Condenser	Illuminator
B-292	Binocular, 30° inclined, 360° rotating.	WF 10x/20	Quadruple, reversed	N-PLAN 4x, 10x, 40x, 100x (oil)	Double layer, 150x139 mm, moving range 75x33 mm, X-axis rackless	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable and centrable	3.6 W X-LED^3 manual brightness control
B-292PLi	Binocular, 30° inclined, 360° rotating.	WF 10x/20	Quadruple, reversed	IOS N-PLAN 4x, 10x, 40x, 100x (oil)	Double layer, 150x139 mm, moving range 75x33 mm, X-axis rackless	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable and centrable	3.6 W X-LED^3 manual brightness control
B-293	Trinocular, 30° inclined, 360° rotating.	WF 10x/20	Quadruple, reversed	N-PLAN 4x, 10x, 40x, 100x (oil)	Double layer, 150x139 mm, moving range 75x33 mm, X-axis rackless	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable and centrable	3.6 W X-LED^3 manual brightness control
B-293PLi	Trinocular, 30° inclined, 360° rotating.	WF 10x/20	Quadruple, reversed	IOS N-PLAN 4x, 10x, 40x, 100x (oil)	Double layer, 150x139 mm, moving range 75x33 mm, X-axis rackless	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable and centrable	3.6 W X-LED^3 manual brightness control
B-290TB	Binocular, 30° inclined, 360° rotating,with tablet.	WF 10x/20	Quadruple, reversed	N-PLAN 4x, 10x, 40x, 100x (oil)	Double layer, 150x139 mm, moving range 75x33 mm, X-axis rackless	Coaxial coarse and fine, limit stop	Abbe N.A. 1.25, iris diaphragm, focusable and centrable	3.6 W X-LED^3 manual brightness control

B-290 Series - Zoom comparison

Ascaris female - B-292 - 4x objective

Ascaris female - B-292 - 10x objective

Ascaris female - B-292 - 40x objective

X-LED³ advantages over halogen illumination

- Improved colour fidelity
- Pure white colour temperature
- Brighter images
- Incredibly low energy consumptions
- Longer lifespan

B-290 Series - **Accessories**

ACCESSORIES FOR B-290 SERIES

M-160	Eyepiece WF10x/20mm.
M-161	Eyepiece WF15x/16mm.
M-162	Eyepiece WF20x/10mm.
M-163	Micrometer eyepiece WF10x/20mm, 10mm/100um.
M-008.1	Eyepiece with pointer WF10x/20mm.
M-164	N-PLAN objective 4x/0.10 (only for B-292 / B-293 / B-290TB).
M-165	N-PLAN objective 10x/0.25 (only for B-292 / B-293 / B-290TB).
M-166	N-PLAN objective 20x/0.40 (only for B-292 / B-293 / B-290TB).
M-167	N-PLAN objective 40x/0.65 (only for B-292 / B-293 / B-290TB).
M-168	N-PLAN objective 60x/0.80 (only for B-292 / B-293 / B-290TB).
M-169	N-PLAN objective 100x/1.25 (oil) (only for B-292 / B-293 / B-290TB).
M-144	IOS N-PLAN objective 4x/0.10 (only for B-292PLi / B-293PLi).
M-145	IOS N-PLAN objective 10x/0.25 (only for B-292PLi / B-293PLi).
M-146	IOS N-PLAN objective 20x/0.40 (only for B-292PLi / B-293PLi).
M-147	IOS N-PLAN objective 40x/0.65 (only for B-292PLi / B-293PLi).
M-148	IOS N-PLAN objective 100x/1.25 (oil) (only for B-292PLi / B-293PLi).
M-149	IOS N-PLAN objective 60x/0.80 (only for B-292PLi / B-293PLi).
M-174	Polarizing set, filters only (for B-290 series).
M-184	Darkfield stop for B-290 condenser.
M-175	Rotating table for polarizing set.
M-069	Solar battery pack.
M-971	Plane-concave mirror, with base.
M-114	C-Mount adapter for 1/2" sensor.
M-115	C-Mount adapter for 1/3" sensor.
M-116	C-Mount adapter for 2/3" sensor.
M-173	Photo adapter for APS-C and Full Frame Reflex cameras.
M-975	Blue filter, 45mm diameter.
M-977	Green filter, 45mm diameter.
M-979	Yellow filter, 45mm diameter.
M-989	Frosted glass filter, 45mm diameter.
M-666.290	Heating stage, with digital temperature controller.
M-005	Micrometer slide for software calibration, 1mm/10um, 10mm/100um.
DC-002	Plastic dust cover, medium – 490(l)x490(h) mm.
DC-003	TNT dust cover, medium – 600(l)x550(h) mm.
15008	OPTIKA immersion oil 10ml.
15104	Cleaning kit.
VP-290	IQ/OQ/PQ Validation Protocols.

How to connect the cameras to our microscopes.
Please refer to the Adapter reference list on Digital section.

M-069 - Solar battery pack

Included battery: rechargeable – Lithium-Poly. Capacity: 2600 mAh.
Output voltage: 5.5Vdc. - Dimensions: 120x73x10 mm.
Autonomy: over 6 hours at medium intensity (X-LED^3).
Charging modes: with solar panel (12h),
with external USB power supply (not included)
or from PC USB port (5h).

15104 - Cleaning kit

It cleans glass quickly and effectively,
without leaving residue or odor.
Ideal for precision lens or prism cleaning.

v 1.0 2018 - OPTIKA reserves the right to make corrections, modifications, enhancements, improvements and other changes to its products at any time without notice.

Headquarters and Manufacturing Facilities

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