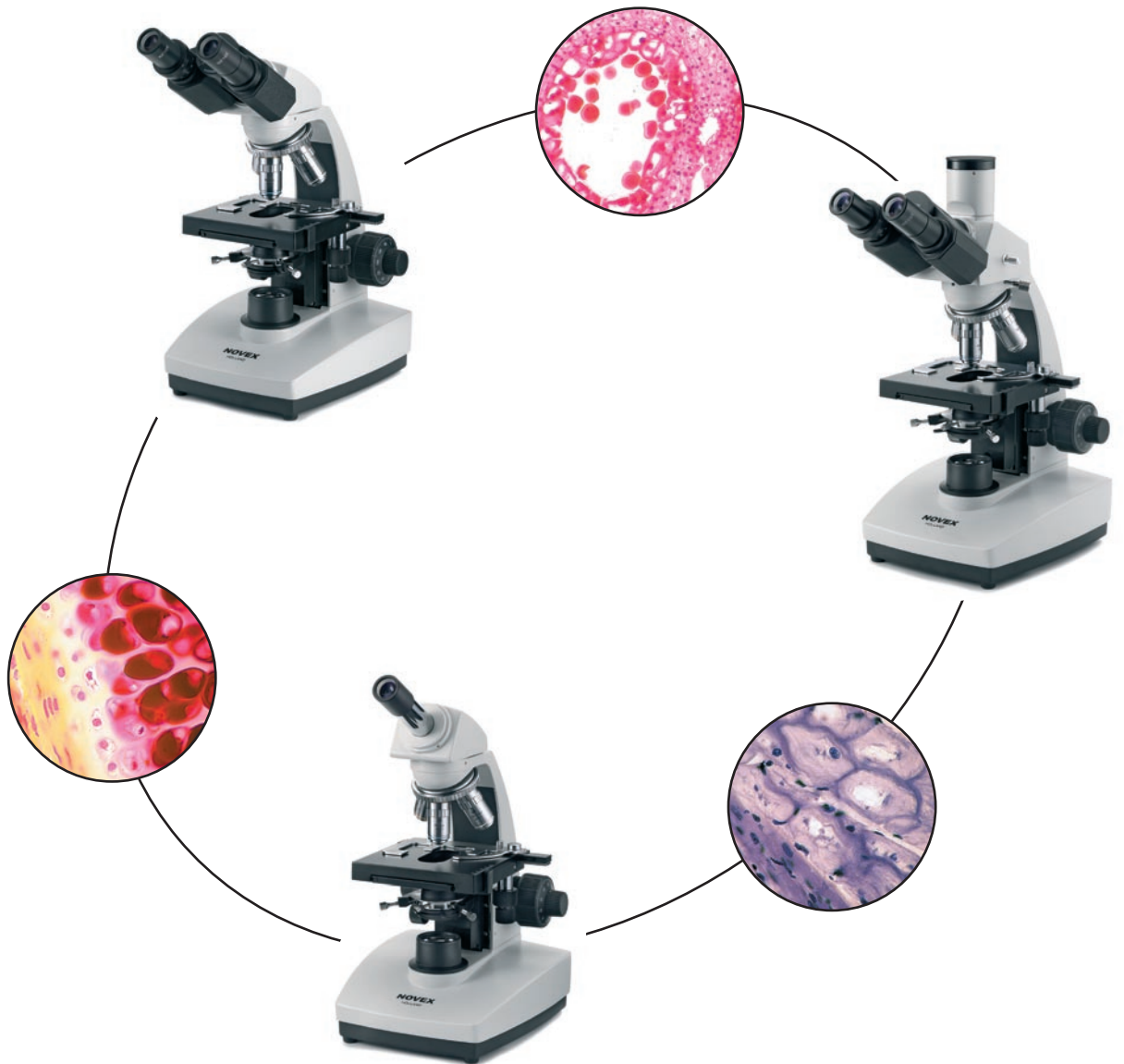


# NOVEX<sup>®</sup>



SCIENCE

B-series

Biological microscopes

# Novex B series



The attractively priced Novex B series microscopes are high quality, robust biological microscopes for educational purposes and scientific research.

## Viewing Head and Eyepieces

The microscopes of the Novex B-series are available in three configurations: monocular, binocular or trinocular. The viewing head is mounted at 30° angle and can be rotated through 360°. Supplied with a WF 10x eyepiece(s). These microscopes have a coaxial course and fine focus adjustment.

## Revolving Objective Changer

All models are equipped with a reversed quadruple revolving objective changer with ball bearings slides for precise indexing (1).

A five position objective changer can be supplied as an option.



## Achromatic Objectives

There is a wide choice of Semiplan, Plan, Phase contrast and ICS objectives (Infinity Corrected System).

## Condenser

The Abbe condenser N.A. 1.25 can be centred and focused and is equipped with an iris diaphragm, filter holder and blue daylight filter.



## Bright Field Illumination

Besides the built-in 6 Volts, 20 Watt halogen illumination there are also models with LED illumination with rechargeable batteries for approx. 50 hrs of usage and internal power supply.



## Mechanical Stage

The standard 125 x 135 mm stage is equipped a ball bearing X-Y stage (range 75 x 35 mm) and a double vernier reading to 0.1 mm. The specimen holder is removable.

(1) The B-series microscopes are supplied with a reversed objective changer, except for the models 86.525, 86.541, 86.125 and 86.141

Mono	Bino	Trino	Objectives	Illumination
86.010	86.025	86.041	Semiplan SP 4x/0.10, SP 10x/0.25, SP S40x/0.65, SP S100x/1.25 oil	Halogen, adjustable intensity
86.010-LED	86.225-LED	86.241-LED	Semiplan SP 4x/0.10, SP 10x/0.25, SP S40x/0.65, SP S100x/1.25 oil	LED, adjustable intensity
86.060	86.075	86.091	Plan PL 4x/0.10, PL 10x/0.2, PL S40x/ 0.65, PL S100x/1.25 oil	Halogen, adjustable intensity
86.060-LED	86.075-LED	86.091-LED	Plan PL 4x/0.10, PL 10x/0.2, PL S40x/ 0.65, PL S100x/1.25 oil	LED, adjustable intensity
	86.125 <sup>(2)</sup>	86.141 <sup>(2)</sup>	Infinity corrected SP 4x/0.10, SP 10x/0.25, SP S40x/0.65, SP S100x/1.25 oil	Halogen, adjustable intensity
	86.125-LED <sup>(2)</sup>	86.141-LED <sup>(2)</sup>	Infinity corrected SP 4x/0.10, SP 10x/0.25, SP S40x/0.65, SP S100x/1.25 oil	LED, adjustable intensity

(2) Only available with non-reversed objective changer for a maximum of 4 objectives

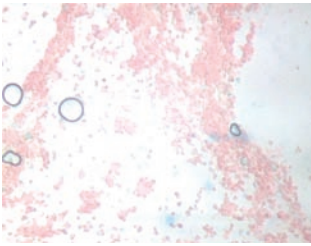


## Darkfield Illumination

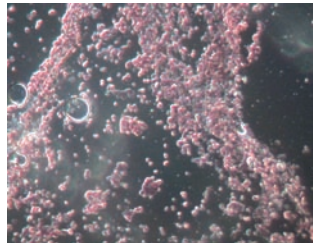
The darkfield set consists of a special condenser with a large numerical aperture N.A. 1.20 (86.627), a DIN Plan 100x objective with iris diaphragm (86.521) and a cold-light source (LE.5210 or LE.5211) with a flexible light guide (LE.5241).

This indirect illumination method enables the microscope user to view the contour and structure of transparent and low contrast specimens on a dark background.

*leptocytosis of red blood cells with bright field*



*leptocytosis of red blood cells with dark field*



One example of the use for this darkfield technique is living blood analysis (LBA). The LBA is a morphological research technique that enables observation of the shape of red blood-corpuscles (Erythrocytes). Anomalies in shape or function provide an approximate indication of possible pathological diseases.



## Phase Contrast Set

The Novex B-series microscopes are available with several Zernike medium-dark phase contrast sets. Complete with centring phase telescope and green filter.



The models 86.310 to 86.391 have a Zernike phase contrast set with phase condenser N.A. 1.25 with rotating wheel of phase annuli and an aperture for bright field. Complete with phase objectives or phase plan objectives.

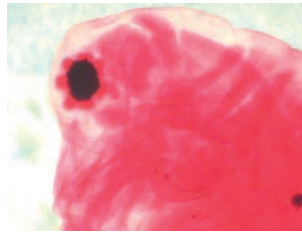
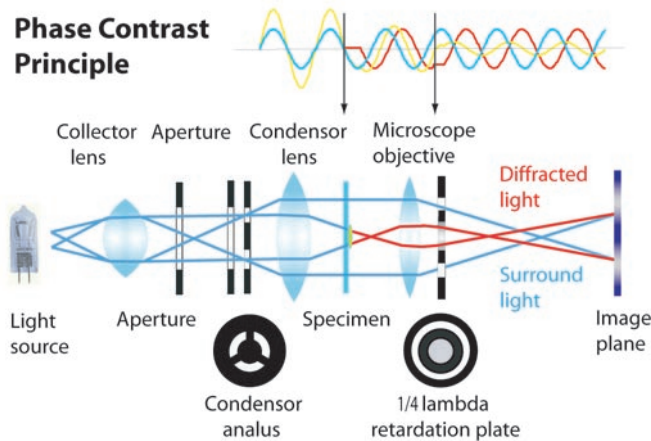


The models 86.410 to 86.491 have a Zernike phase contrast set with phase condenser N.A. 1.25 and a sliding phase plate containing a phase ring and an aperture for bright field. Complete with a plan phase S40x objective and 4x, 10x and 100x semi-plan or plan bright field objectives.

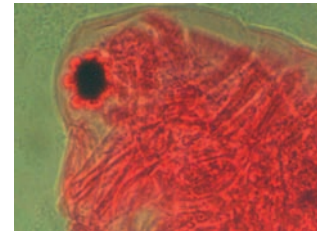
Mono	Bino	Trino	Objectives ( DIN )	Illumination	Remarks
86.310	86.325	86.341	Phase PH 10x/0.25, PH 20x/0.40, PH S40x/0.65 and PH S100x /1.25 oil	Halogen adjustable intensity	Phase condenser with rotating disc
86.310-LED	86.325-LED	86.341-LED	Phase PH 10x/0.25, PH 20x/0.40, PH S40x/0.65 and PH S100x /1.25 oil	LED adjustable intensity	Phase condenser with rotating disc
86.360	86.375	86.391	Plan Phase PLPH 10x/0.25, PLPH 20x/0.40, PLPH S40x/0.65 and PLPH S100x /1.25 oil	Halogen adjustable intensity	Phase condenser with rotating disc
86.360-LED	86.375-LED	86.391-LED	Plan Phase PLPH 10x/0.25, PLPH 20x/0.40, PLPH S40x/0.65 and PLPH S100x /1.25 oil	LED adjustable intensity	Phase condenser with rotating disc
86.410	86.425	86.441	Semiplan SMP 4x/0.10, SMP 10x/0.25, SMP S100x /1.25 oil and PLPH S40x/0.65	Halogen adjustable intensity	Phase condenser with 40x phase plate
86.410-LED	86.425-LED	86.441-LED	Semiplan SMP 4x/0.10, SMP 10x/0.25, SMP S100x /1.25 oil and PLPH S40x/0.65	LED adjustable intensity	Phase condenser with 40x phase plate

# Top class research microscopes

## Phase Contrast Principle



Bright field



Phase contrast

The phase contrast method was designed in 1934 by the Dutchman Frits Zernike to observe very thin or transparent objects. This technique uses the fact that light travelling through tissue undergoes a phase shift due to diffraction. By recombining the phase shifted light with the background light, a contrasted image appears in the eyepiece.

For phase contrast an objective with a retardation plate and a condenser with a phase-ring is used.

## Temperature controlled Stage

Besides a phase set the models 86.525 and 86.541 have a specifically designed heated stage.

The temperature of the stage can be adjusted up to 50°C by a PID controller. The heater is mounted below the microscope stage and can only be ordered when purchasing a new microscope.

## Camera and Video Set

The trinocular head phototube can be activated and de-activated. When it is activated the image remains visible in one eyepiece, which gives the maximum light intensity to the photo/video equipment. A separate brochure describes the digital and analogue photo/video camera solutions.



Mono	Bino	Trino	Objectives	Illumination	Remarks
86.460	86.475	86.491	Plan PL 4x/0.10, PL 10x/0.25, PL S100x/1.25-oil and PLPH S40x/0.65	Halogen adjustable intensity	Phase condenser with 40x phase plate
86.460-LED	86.475-LED	86.491-LED	Plan PL 4x/0.10, PL 10x/0.25, PL S100x/1.25-oil and PLPH S40x/0.65	LED adjustable intensity	Phase condenser with 40x phase plate
	86.525 <sup>(2)</sup>	86.541 <sup>(2)</sup>	Phase PH 10x/0.25, PH 20x/0.40, PH S40x/0.65 and PH S100x/1.25-oil	Halogen adjustable intensity	Phase condenser with rotating disc
	86.525-LED <sup>(2)</sup>	86.541-LED <sup>(2)</sup>	Phase PH 10x/0.25, PH 20x/0.40, PH S40x/0.65 and PH S100x/1.25-oil	LED adjustable intensity	Phase condenser with rotating disc and heated stage

(2) Only available with non-reversed objective changer for a maximum of 4 objectives

# Accessories

## Eyepieces DIN

86.572	Wide field eyepiece WF 10x / 18
86.573	Wide field eyepiece WF 15x / 12
80.882	Wide field eyepiece WF 20x / 10
86.574	Wide field eyepiece WF10x / 18, with graticule 10 mm / 100 parts Adjustable lens

## Objectives

86.891	Achromatic Semiplan Objective DIN SMP 4x N.A. 0.10
86.893	Achromatic Semiplan Objective DIN SMP 10x N.A. 0.25
86.894	Achromatic Semiplan Objective DIN SMP 20x N.A. 0.40
86.897	Achromatic Semiplan Objective DIN SMP S40x N.A. 0.65
86.900	Achromatic Semiplan Objective DIN SMP S100x N.A. 1.25 - oil
80.899	Achromatic Objective DIN S60x N.A. 0.85
86.511	Achromatic Plan Objective DIN PL 4x N.A. 0.10
86.513	Achromatic Plan Objective DIN PL 10x N.A. 0.25
86.514	Achromatic Plan Objective DIN PL 20x N.A. 0.40
86.517	Achromatic Plan Objective DIN PL S40x N.A. 0.65
86.519	Achromatic Plan Objective DIN PL S60x N.A. 0.85
86.520	Achromatic Plan Objective DIN PL S100x N.A. 1.25 - oil
86.521	Achromatic Plan Objective DIN PL S100x N.A. 1.25 - oil with iris diaphragm
86.413	Achromatic Phase Objective DIN PH 10x N.A. 0.25
86.414	Achromatic Phase Objective DIN PH 20x N.A. 0.40
86.417	Achromatic Phase Objective DIN PH S40x N.A. 0.65
86.420	Achromatic Phase Objective DIN PH S100x N.A.1.25 - oil
86.313	Achromatic Plan Phase Objective DIN PLPH 10x N.A. 0.25
86.314	Achromatic Plan Phase Objective DIN PLPH 20x N.A. 0.40
86.317	Achromatic Plan Phase Objective DIN PLPH S40x N.A. 0.65
86.320	Achromatic Plan Phase Objective DIN PLPH S100x N.A. 1.25 - oil

## Phase Contrast and Dark Field equipment

86.613	Zernike medium dark phase contrast set. The set consists of a special phase condenser N.A.1.25 with phase plate, an aperture for bright field illumination and a Phase Objective DIN PLPH S40x N.A. 0.65. Delivered with centring telescope and green filter.
86.615	Zernike medium dark phase contrast set. The set consists of a special phase condenser N.A.1.25 with rotating wheel of phase annuli and an aperture for bright field illumination. Complete with Achromatic Phase Objectives DIN PH 10x N.A. 0.25, PH 20x N.A. 0.40, PH S40x N.A. 0.65 and PH S100x N.A. 1.25 oil. Delivered with centring telescope and green filter

# Accessories

## Phase Contrast and Dark Field equipment

- 86.617** Zernike medium dark phase contrast set, same as 86.615, but with Plan Phase Objectives DIN PLPH 10x N.A. 0.25, PLPH 20x N.A. 0.40, PLPH S40x N.A. 0.65 and PLPH S100x N.A. 1.25
- 86.172** Dark field disc to be used with objectives from 10x to 40x. Fits the filter holder.
- 86.627** Condenser for dark field N.A.1.20 for objectives 10x to 100x. For blood analysis it is recommended to use the S100 N.A. 1.25 - oil objective with iris diaphragm (86.521). The dark field condenser is used in combination with a cold light source LE.5210 or LE.5211 and fibre guide LE.5241
- LE.5210** Cold light source, 100 Watt Halogen
- LE.5211** Cold light source, 150 Watt Halogen
- LE.5241** Fibre optic light guide, to be mounted under dark field condenser 86.627

## Miscellaneous

- 80.839** Pair eyecups for eyepieces,  $\varnothing$  28 mm
- 80.810** Object glass 76 x 26 mm with graticule 1 mm / 100 parts
- 86.812** Discussion tube with vertical and oblique tube. Eyepieces not included
- 86.817** C-mount adapter for CCD camera
- 86.820** Adapter for reflex camera for 2.5x and 4x objectives
- 86.127** Adapter for reflex camera. T2 adapters on request
- 80.861** Photo eyepiece PH 2.5x, to be used with 86.127
- 86.851** Polarisation set. The analyser fits under the viewing head and the polariser attaches to the lamp
- 86.852** Polarisation set for models with LED illumination
- 86.860** Köhler diaphragm with centring, to be mounted on lamp
- 86.889** Spare halogen bulb 6 Volt 20 Watt
- 86.101** Led Assy replacement for 86.xxx-LED models
- 86.806** Mirror with adapter to be mounted on lamp
- 86.960** Cabinet with handle and lock
- 86.961** Cabinet made of plastic
- 
- AE.5202** Blue filter  $\varnothing$  32 mm
- AE.5203** Yellow filter  $\varnothing$  32 mm
- AE.5204** Neutral density filter  $\varnothing$  32 mm
- AE.5205** Green filter  $\varnothing$  32 mm
- AE.5205** Blue filter, Plexiglass  $\varnothing$  32 mm
- AE.5227** Spare fuses 1A, pack of 10
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- PB.5155** Microscope 76 x 26 mm glass slides, edges grinded, packed per 50 pieces
- PB.5168** Cover glasses 22 x 22 mm, thickness 0.13-0.17 mm, packed per 100 pieces
- PB.5255** Immersion oil  $n=1.482$ , 25 ml
- PB.5274** Isopropanol 99%, 200 ml cleaning liquid
- PB.5245** Lens cleaning paper, 100 sheets



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