

# Delphi-X Observer

## Metallurgical

### HIGHLIGHTS

- Brightfield and Darkfield EPI illumination
- Nomarski DIC (optional)
- Enhanced infinity corrected EIS optical system
- High contrast objectives with minimal aberrations
- Full Apo, Semi- Apo and Plan EIS objectives
- Super Wide field SWF 10x/25mm eyepieces
- 100 W halogen illumination
- Sextuple reversed nosepiece with slot for DIC

### SPECIFICATIONS

#### EYEPIECES

- Super Wide field SWF 10x/25 mm, Ø 30 mm tubes
- Extended Wide Field EWF 10x/22 mm, Ø 30 mm tubes (optional)

#### STANDARD HEAD

Siedentopf trinocular with 30° inclined tubes. Interpupillary distance adjustable between 47 and 78 mm. The trinocular standard head has an optical path selector (100:0 / 80:20 / 0:100). Diopter adjustment on both eyepieces

#### ERGONOMIC TILTING HEAD

Optional ergonomic 0 to 35° tilting trinocular head supplied with SWF 10x/25 mm eyepieces, interpupillary distance between 47-78 mm and photo tube with standard Ø 23.2 mm tube. The trinocular tilting head has an optical path selector (100:0 / 80:20 / 0:100). Diopter ± 5 adjustments on both eyepieces

#### NOSEPIECE

Revolving sextuple reversed nosepiece on ball-bearings with 25 mm objectives mounting threads



DX.2053-PLMRi

DX.2053-PLMRi  
DX.2058-PLMRi

510 (h) x 261 (w) x 367 mm (d) | 21.1 kg  
582 (h) x 261 (w) x 367 mm (d) | 21.6 kg

#### ENHANCED INFINITY SYSTEM (EIS)

The enhanced infinity system (EIS) of the Delphi-X Observer™ consists of Super wide field SFWF 10x25 mm eyepieces, high numerical aperture 45 mm parafoal objectives and a 200 mm focal length tube lens. The 200 mm focal length tube lens reduces the angle of the light rays passing through the optics and as a direct result improving significantly the chromatic aberration corrections and contrast. The objectives with larger diameter enable much higher numerical apertures improving the overall resolving power of the optical system

For all these reasons the Delphi-X Observer™ offers superior optical performance for the most demanding applications

- The stage of the Delphi-X Observer metallurgical can be mounted in two positions



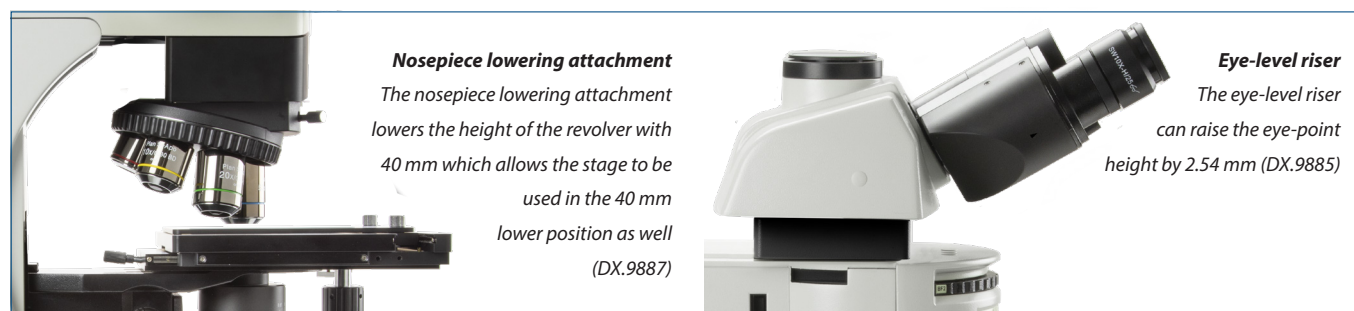
## OBJECTIVES

The Delphi-X Observer™ is standardly supplied with Plan Semi-Apochromatic BD 5x/0.15 WD 20 mm, 10x/0.30 WD 11 mm and 20x/0.45 WD 3.1 mm Plan Apochromatic BD 50x/0.80 WD 1 mm, 100x/0.90 WD 1 mm objectives infinity corrected brightfield/darkfield objectives

Plan Semi-Apo (SAMI)	5x/0.15, WD 20 mm	10x/0.30, WD 11 mm	20x/0.45, WD 3.1 mm		
Plan Apo (PLAMi)				50x/0.80, WD 1 mm	100x/0.90, WD 1 mm*
Plan (PLMi)	2x/0.06, WD 7.5 mm*				

\* Optional

All objectives are 45 mm parafoal and have a M25 mm mounting thread. All optics are anti-fungus treated and anti-reflection coated for maximum light throughput



## STAGE

- Large 215 x 170 mm stage with 105 x 105 mm integrated right-handed mechanical stage, with glass and metal insert
- Stage height can be lowered for large samples (1 to 28 mm standard sample size, lowered to 55 mm sample size)

For user ergonomics the stage height can be lowered by one inch while maintaining standard sample height, using the optional nose piece lowering attachment (DX.9887)

## FOCUSING

Coaxial coarse and fine adjustment, 100 graduations, 1 µm precision, 100 µm per rotation, total travel range is approximately 35 mm. Supplied with an adjustable rack stop to prevent damage to sample and objectives. The coarse adjustments are equipped with friction control. The focusing knobs can be switched from left to right according to the user's preference

## LONG W.D. CONDENSER

In height adjustable long working distance N.A. 0.65 condenser (10.2 mm) with numerical aperture identification marks allows easy setting

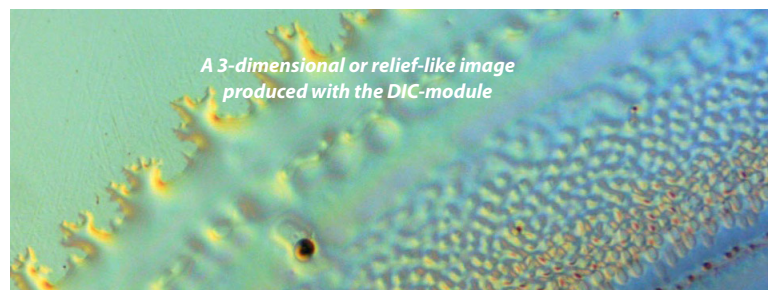
## ILLUMINATION

The Delphi-X Observer materials science microscope is equipped with Epi and Diascopic intensity adjustable 100 W halogen illumination with internal 100-240 Vac power supply. The diascopic halogen illumination comes with two push-in/push-out neutral density filters for smooth attenuation of the light intensity for all kinds of samples

The microscope comes standard with a analyzer and a polarizer which can easily be inserted into the free slots into the Epi-Illuminator for high quality polarized images. Further a rotating cassette is implemented for quick changing between darkfield, brightfield and dimmed brightfield

## NOMARSKI DIC (OPTIONAL)

With the redesign of the DIC-module visualization of height differences which normally cannot be displayed using brightfield techniques has greatly improved. These relief-like images are ideal for surface inspections of wafers, LCD screens etc



## CARRYING GRIP

The carrying grip at the back of the microscope ensures safe transportation of the microscope and the integrated tool and holder makes sure the right tool is always available

## PACKAGE CONTENT

Supplied with power cord, dust cover, a spare fuse, user manual and universal tool. All packed in a polystyrene box

MODELS	Fixed 30 degree Siedentopf head	Ergonomic tilting head	SWF 10x/25 mm eyepieces	Plan BD 2x/0.06 objective*	Plan Semi-Apochromatic BD 5x/0.15, 10x/0.30 and 20x/0.45 objectives*	Plan Apochromatic BD 50x/0.80 objective*	Plan Apochromatic BD 100x/0.90 objective*	100 W 12 V transmitted halogen Köhler illumination	100 W 12 V reflected halogen Köhler illumination	Differential interference Contrast (DIC)
DX.2053-PLMRI	•		•	o	•	•	o	•	•	o
DX.2058-PLMRI		•	•	o	•	•	o	•	•	o
DX.2053-PLMi	•		•	o	•	•	o		•	o
DX.2058-PLMi		•	•	o	•	•	o		•	o

\* Infinity corrected

o = optional



● Revolver with slot for Nomarski DIC slider



● DX.2058-PLMRI

## ACCESSORIES AND SPARE PARTS

### EYEPIECES

- DX.6010** Super wide field SWF 10x/25 mm eyepiece for Ø 30 mm tube
- DX.6010-CM** Super wide field SWF 10x/25 mm eyepiece with 10/100 micrometer and crosshairs for Ø 30 mm tube
- DX.6210** Super wide field SWF 10x/22 mm eyepiece for Ø 30 mm tube
- DX.6210-CM** Super wide field SWF 10x/22 mm eyepiece with micrometer and crosshairs for Ø 30 mm tube
- DX.6012** Wide field WF 12.5x/17.5 mm eyepiece for Ø 30 mm tube
- DX.6015** Wide field WF 15x/16 mm eyepiece for Ø 30 mm tube
- DX.6020** Wide field WF 20x/12 mm eyepiece for Ø 30 mm tube
- DX.6099-L** Eyshade for eyepieces

### INFINITY CORRECTED OBJECTIVES

- DX.8102** Infinity EIS 45 mm Plan PLMi 2x/0.06 objective. Working distance 7.5 mm \*
- DX.8105** Infinity EIS 45 mm Plan Semi- Apochromatic SAMi 5x/0.15 BD objective. Working distance 20 mm \*
- DX.8110** Infinity EIS 45 mm Plan Semi- Apochromatic SAMi 10x/0.30 BD objective. Working distance 11 mm \*
- DX.8120** Infinity EIS 45 mm Plan Semi- Apochromatic SAMi 20/0,45 BD objective. Working distance 3.1 mm \*
- DX.8150** Infinity EIS 45 mm Plan Apochromatic PLAMi 50x/0.80 BD objective. Working distance 1 mm \*
- DX.8100** Infinity EIS 45 mm Plan Apochromatic PLAMi 100x/0.90 BD objective. Working distance 1 mm \*

\*No cover glass correction, M26 thread

### STAGE OPTIONS

- DX.9502-R** Plain mechanical stage right handed
- DX.9502-L** Plain mechanical stage left handed
- DX.9501-R** Stage with Gorilla glass, hole and specimen holder. Right handed
- DX.9501-L** Stage with Gorilla glass, hole and specimen holder. Left handed
- DX.9504-R** Stage with Sapphire glass, hole and specimen holder. Right handed
- DX.9504-L** Stage with Sapphire glass, hole and specimen holder. Left handed

### MISCELLANEOUS

- DX.9696** DIC attachment for materials sciences Delphi-X Observer models
- DX.9704** Yellow filter for lamphouse, diameter 45 mm
- DX.9810** C-mount with 1 magnification for C-mount camera
- DX.9835** C-mount with high resolution relay 0.35x objective for 1/3 inch C-mount camera
- DX.9850** C-mount with high resolution relay 0.50x objective for 1/2 inch C-mount camera
- DX.9863** C-mount with high resolution relay 0.63x objective for 2/3 inch C-mount camera
- DX.9885** 25.4 mm eye-level riser (1 inch)
- DX.9887** 40 mm nosepiece and stage lowering attachment
- DX.9961** 100 Watt 12 V halogen bulb for Delphi-X Observer (revision 2 models)
- AE.5216** Fuses 5A 250 V, per 10 pcs. models with 100 W halogen
- AE.5130** Universal SLR-adapter with built-in 2x lens for standard 23.2 mm tube. Needs T2 adapter
- AE.5025** T2 ring for Nikon D SLR-digital camera
- AE.5040** T2 ring for Canon EOS SLR-digital camera
- PB.5245** Lens cleaning paper, 100 sheets per pack
- PB.5255** Immersion oil, 25 ml. Refraction index n = 1.482
- PB.5274** Iso propyl alcohol 99%, 200 ml
- PB.5275** Cleaning kit: lens fluid, lint free lens tissue paper, brush, air blower, cotton swabs
- PB.5276** Microscope maintenance and servicing kit, 16pcs: cleaning brush, 6 pcs screwdriver set, air blower, 3 pcs Allen key, 1.5, 2, 2.5 mm, lens cleaning fluid 20 ml, cleaning cloth 140 x 140 mm, 100 pcs Lens tissue sheets, tube of maintenance grease, 10 ml bottle of oil, packed in a nice toolbox