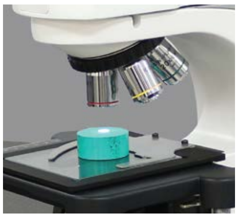
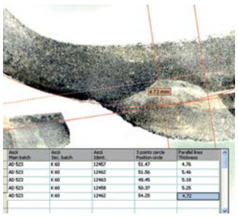
metkon
Technology behind Specimen

UPRIGHT METALLURGICAL MICROSCOPE

UPM 902





QUARTER CENTURY OF
EXPERIENCE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UPM
902

METKON UPM 902 meets a wide variety of analysis applications equipped with enhanced and impressive optics, a wide field of view of 22 mm, exclusive X-LED lighting source and Koehler illuminator to produce high sample contrast and homogeneous bright light.

UPM 902 is advanced routine laboratory microscope with IOS W-PLAN MET objectives and metallurgical attachment with the exclusive X-LED lighting source for both transmitted and incident illumination. No cover glass objectives are especially designed for microscopy use without a cover slip ideal for metallographic samples and other opaque specimens.

Many components of UPM 902 to ensure the high performance and at the same time an incredible level of reliability and durability. Its excellent quality/price ratio is achieved through an intelligent rationalization of production costs and choice of materials.

SPECIFICATIONS

Observation mode:
- Brightfield on transmitted light
- Brightfield
- Simple polarized light
- Oblique illumination on incident light

Epi-illumination: X-LED with white 8 W LED (6.300 K) with brightness control. With aperture and field diaphragms, and oblique illumination system.

Head: Trinocular (fixed 50/50), 30° inclined, 360° rotating.

Interpupillary distance: Adjustable between 50 and 75 mm.

Dioptric adjustment: On the left eyepiece tube.

Eyepieces: WF10x/22 mm, high eye-point and with rubber cups.

Nosepiece: 5-position revolving nosepiece, rotation on ball bearings.

Objectives (strain-free):
IOS W-PLAN MET 5x/0.12
IOS W-PLAN MET 10x/0.25
IOS W-PLAN MET 20x/0.40
IOS W-PLAN MET 50x/0.75

Specimen stage: Double layer rackless mechanical stage, 233x147 mm, 78x54 mm X-Y range. With tempered glass plate.

Focusing: Coaxial coarse (adjustable tension) and fine focusing mechanism

Dimensions: Height (mm) 505
Width (mm) 270
Depth (mm) 550
Weight: 12.5 kg

Illumination switch

Double layer rackless mechanical stage, 233x147 mm, 78x54 mm X-Y range. With tempered glass plate

Condenser: Swing-out N.A. 0.2/0.9, with iris diaphragm, focusable and centreable.

Transmitted illumination (Full Koehler type): X-LED with white 3.6 W LED (6.300 K) with brightness control. Multi-plug 100-240Vac/6Vdc external power supply.

Double layer rackless mechanical stage

WF10x/22 mm high eye-point eyepiece with dioptric and interpupillary adjustment

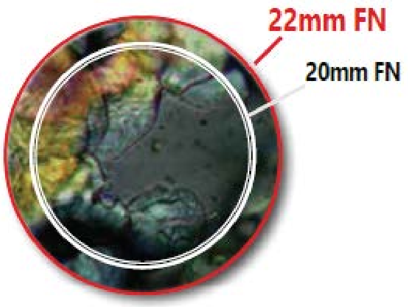
XY movement 78x54mm

X-LED Full Koehler type transmitted illumination

FEATURES & BENEFITS

Large Specimen View (22 mm Field of View)

22mm field of view is offering comfortable use. This means that an extra wide area of the sample can be inspected and allows a natural and easy view, particularly needed in a laboratory environment.



Safe And Convenient Operations

Rounded edge 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.

X-LED Exclusive Lighting Source

Unique X-LED illumination system provides very high light intensity, exclusive lens & collector design, constant pure-white color temperature at all intensity levels, unmatched color fidelity, uniformity and brightness. Special technology able to double the light intensity for incomparable performance, ensuring constant pure-white color temperature (6,300K color temperature). Relevant money and energy saving thanks to the incredibly low energy consumptions which allows you to cut the electricity bills by 90%! The electric consumption (3.6 W only) proves the high efficiency of this system: incredibly high light intensity combined with low consumption.

Smart Design For High Sample Throughput

Large, resistant stage to easily and quickly process 2 samples. Ergonomic design and controls for extended operation. Convenient handle for easy transportation.

Good Eyesight For Good Image Analysis

WF10x/22mm eyepieces for large specimen view. Comfortable rubber cup to get rid of annoying external light. High eye-point for glasses wearers, dioptric adjustment (left eyepiece) to compensate for differences between two eyes. 50-75mm interpupillary adjustment to compensate distance difference between two eyes.

Coarse And Fine Focusing

Coaxial coarse (adjustable tension) and fine focusing mechanism with limit stop to prevent the contact between objective and specimen.

Saving Electricity Power by 90%

Energy saving, only 3.6 W. More efficient brightness than a 50 W halogen lamp. LED long lifetime (65,000 hours = 22 years at 8 hours/day usage).

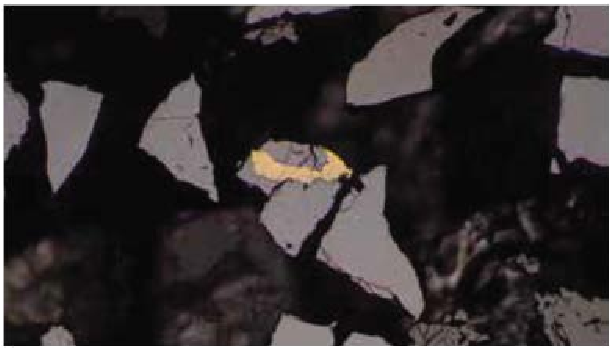
Monitoring The Image Instantly

Trinocular port to be always updated with the latest technology cameras, even in the future. Modern C-mount focusable professional adapters for all kinds of cameras.

Different Observation Modes

With brightfield and brightfield on transmitted light observation modes ensure to view specimen is very simple and easy use with fewer adjustment needed.

- Brightfield on transmitted light
- Brightfield
- Simple polarized light
- Oblique illumination on incident light



High Quality Objectives For Material Science.

IOS W-PLAN MET objectives and metallurgical attachment along with powerful XLED light source for material science and metallographic applications, combining a sturdy and compact structure with dedicated components required in related fields. No cover glass objectives working without cover slide ideal for metallographic samples and other kind of specimens.

IOS W-PLAN MET (5x, 10x, 20x, 50x) Objectives. 100x is optional

Order no: 60 04

62 40 —— Ergonomic binocular head 30°-60°

62 41 —— Eyepiece EWF10x/22mm

62 42 —— Eyepiece WF15x/16mm

62 43 —— Eyepiece micrometer EWF10X/22mm

60 41 —— 26x76mm micrometric slide. R:1mm, div:0,01mm

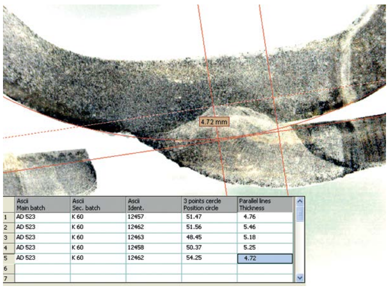
60 74 —— Photo adapter for IMAGINE HARDWARE SET 0.5x focusable

IMAGE ANALYSIS

MESURA 200

IMAGIN MESURA 200 allows you to view the live microscope image, compare it with stored images and if necessary save it to the system. Several databases can be created according to the customers, projects, materials or specimens.

IMAGIN MESURA 200 has several measurement tools for performing manual measurements of lines, curves, angles, areas etc. after which they can be saved and archived. Many application areas exist like "Weld Assessments, Macro analysis, PCB component measurements etc.



	Ascii Main batch	Ascii Sec. batch	Ascii Ident.	3 points cercle Position circle	Parallel lines Thickness
1	AD 523	K 60	12457	51.47	4.76
2	AD 523	K 60	12462	51.56	5.46
3	AD 523	K 60	12463	48.45	5.18
4	AD 523	K 60	12458	50.37	5.25
5	AD 523	K 60	12462	54.25	4.72
6					
7					

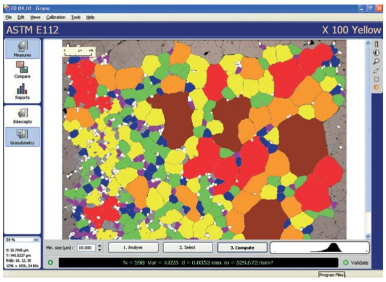
With 'Annotation' facility, it is possible to add comments, graphics, arrows etc. directly on the image allowing you to label specific areas of interest.

IMAGIN MESURA 200 allows you to design your own template or select one of METKON's standard templates for "Report Generation" where the text and images are automatically placed. When required, it is also possible to transfer data directly to Excel for further processing.

GRANO 200

Customer requirements for imaging applications increase in parallel to the complexity of material applications in research field as well as in industry.

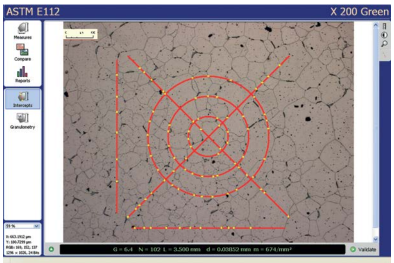
IMAGIN GRANO module has been designed for automatic measurement of grain size according to ASTM E112 and EN ISO 643. Firstly, the grain boundaries are detected after which the grain size can be calculated in different ways;



Min. size (µm) : 10.000

N = 598 Var = 4.825 d = 0.0352 mm m = 529.672/mm²

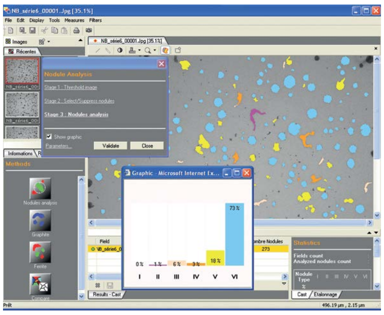
"Intercept Method" counts the number of intersection in each field and the grain size is calculated by Abrams 3-circle or Linear Equations. "Area Method" determines the size of each individual grain by area after which the grains are categorized for the calculation of fractions.



G = 6.4 N = 102 L = 3.500 mm d = 0.03852 mm m = 674/mm²

NODULA 200

IMAGIN Modular Imaging System offers flexibility to the customer to select and build his own system according to his individual needs. More modules can be added at any time when needs grow.



IMAGIN NODULA 200 module is designed for the analysis of graphite in cast irons especially in Ductile and Gray Iron Foundries and Quality Control Labs. Nodularity assessment is made by percent count and nodules proportion. It is also possible to measure "Area percent ferrite, Area percent graphite and Area percent Pearlite". Archiving of all images with calibration and generating Reports creates an additional advantage to increase productivity and repeatability.

SPECIFICATIONS

IMAGIN Hardware Set

CMOS Color Camera, Resolution 5.0 M. Pixels with Interpole Mod USB2 - PC Interface, C Mount - Microscope Interface. Including DUROLINE, IMM or PST adapter according to application.

Order No: 66 10

IMAGIN MESURA 200

Image capture, Image archiving, Image enhancement, Calibration, measure Length, thickness, width, angle, radius, curve perimeter, area. Multi Image Alignment, Multi Focus Function. Phase content analysis, Add Text & Marker Arrow and Calibration Scale, Image annotation, Image report generator, Automatically measurements and threshold function, Direct transfer to Excel.

Order No: 66 02

IMAGIN GRANO 200

Image capture, save and calibration, Grain sizing software in compliance with ASTM E1382 / E112 and EN ISO 643, Horizontal, vertical, diagonal or circles interception methods. Instant detection of Grain Boundaries, Powerful report generator, Direct transfer to Excel.

Order No: 66 04

IMAGIN NODULA 200

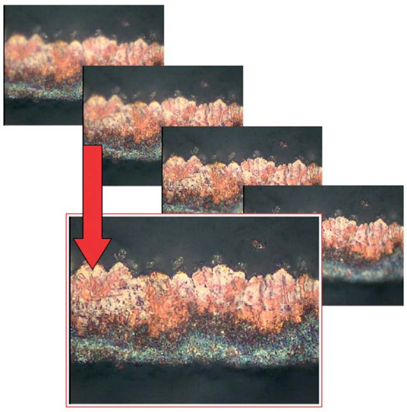
Image capture, save and calibration, Graphite nodules automatically detected and colored with regards to shape and size, Cast iron analysis in compliance with ASTM A247 including nodularity, Ferrite / Perlite fraction. Automatically count Sphericity %, gray iron flakes, calculates percent, graphite and classifies the flakes by size. Powerful report generator, Direct transfer to Excel.

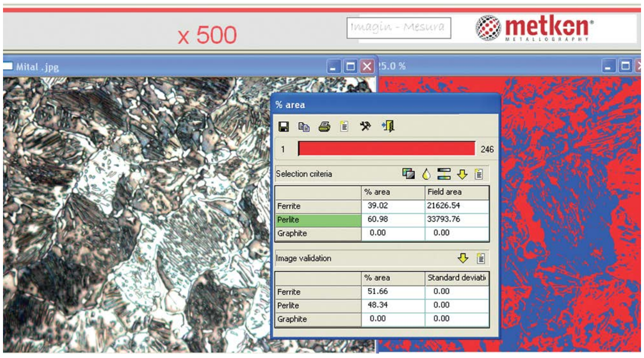
Order No: 66 05

IMAGIN TRIO

A complete set for image analysis. Including IMAGIN Hardware Set and all software modules (IMAGIN MESURA 200, IMAGIN GRANO 200 ve IMAGIN GRANO 200).

Order No: 66 07





	% area	Field area
Ferrite	39.02	21626.54
Perlite	60.98	33793.76
Graphite	0.00	0.00

	% area	Standard deviati
Ferrite	51.66	0.00
Perlite	48.34	0.00
Graphite	0.00	0.00

* Other voltages and frequencies available upon request. Please state when ordering. All specifications are subject to change without notice.

metkon®
Technology behind Specimen

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