



IMS-300 (431-132)

**Applications:**

IMS-300 Metallurgical Microscope which with metallurgical plan objectives, polarizing attachment and 1x or 0.6x C-mount is widely used in observation & analysis of metallurgical organization in mechanical industry, research of geological & mineral department and viewing and measuring crystal, integrate circuit, micro-electronics etc. in electronic industry. It is the good choice of factories, academies, scientific research organization and electronic industrial.

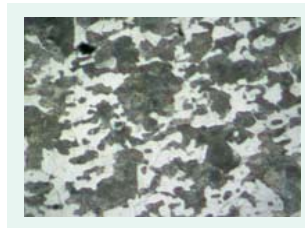


Image Analysis Software META VISION

**IMS-300 Standard Delivery**

Standard Delivery	IMS-300(431-132)	Order#
Main Body	Main Body	431-132
Eyepiece	Wide field WF10X(Ø18mm)	431-512
	Reticule Wide field WF10X(Ø18mm)	431*512
Objectives	Plan Achromatic 10X/0.25	431-632
	Plan Achromatic 20X/0.35(S)	431-642
	Plan Achromatic 40X/0.65(S)	431-652
	Plan Achromatic 100X/1.25(S)(oil)	431-692
Trinocular Head	Inclined 45° , Light Distribution:20:80	431-502
Mechanical Stage	Travel Range: 50 × 40mm; Size: 180 × 165mm	431-402
Stage Plate	2 (Φ20mm)	431-422
	3 (Φ40mm)	431-432
Illuminator	6V/30W Halogen Lamp	431-803
	Spare Lamp: 2pc	431-802
	Spare Fuse: 2pc	431-812
Color Filter	Grey, Blue, Green ,White Color Filter	431-302



CCD and USB camera



Objective

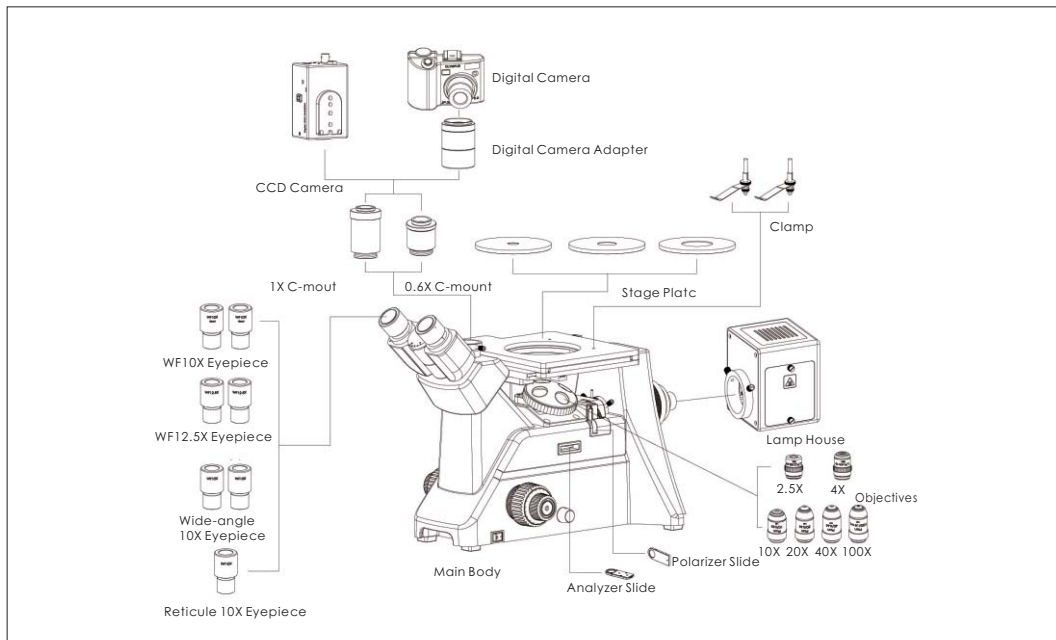


Eyepiece

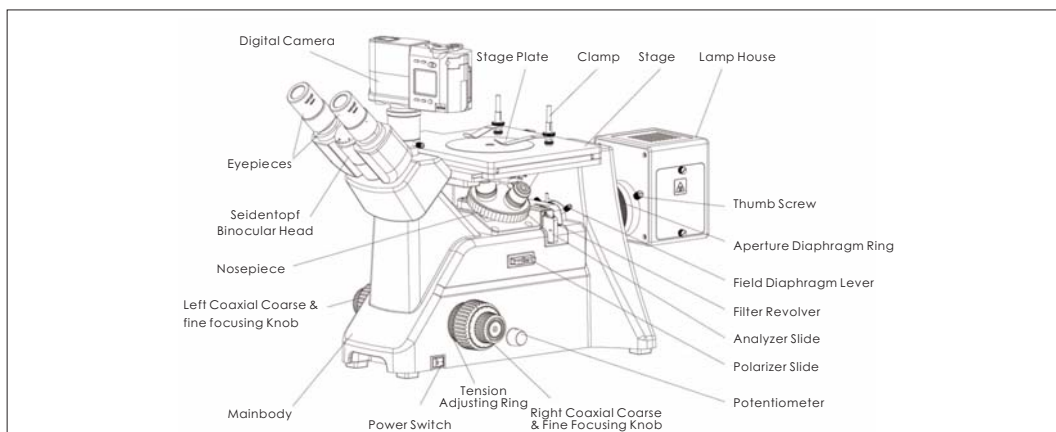
## IMS-300 Optional Accessories:

Optional Accessories	Technical Specifications	Order#
Eyepiece	Wide field WF10X(Ø20mm)	431-522
	Wide field WF12.5X(Ø14mm)	431-532
	Wide field WF16X(Ø13mm)	431-552
	Huygenian Ocular 5X(Ø20mm)	431-572
Objectives	Plan Achromatic 2.5X/0.07	431-602
	Plan Achromatic 4X/0.10	431-612
Stage Plate	1 (Φ10mm)	431-412
CCD Adapter	1 × C-mount ( Available for Digital Camera)	431-712
	0.6 × C-mount (Available for Vision)	431-722

## IMS-300 System Diagram:



## IMS-300 Structure Chart:





CCD Camera MC2

### CCD Camera

Model	MC2
Order #	484-132
Synchronizing system	Internal
Image sensor	1/3 inch
ResolutionHorizontal:	480TV lines
Minimum illumination	0.1lu x. F1.2 (AGC ON)
Back light compensation	ON / OFF selectable
Lens mount	CS-mount
Power supply	DC12V
Dimension	35.5 (W) x 36(H) x 64 (D) mm )
Optional capture card	Order # 527-131



USB CMOS Camera

### CMOS Camera

USB CMOS Camera	UCC1.3M	UCC3.2M	UCC5.2M
Order #	485-215	484-225	484-235
Pixel	1.3M	3.2M	5.2M
PC Interface	USB 2.0 Support		
Sensor	½ inch		
Maximum Resolution	2048x1536		
Video Mode	2592x1944;2048x1536;1024x768;640x480		
Dynamic Range	75dB		
Sensitivity	1.5V/lux-sec@550nm		
Color	Max 1.64 million 24Bit Color		
Color Mode	Color / Mono , R-G-B / B-G-R		
Driver	Direct Show & Twain		
Power Source	From USB 2.0 Port		
White balance	Automatic & Manual R-G-B		
Exposure	Auto-Exposure/Target/Time/Gain		
Image control	Color-Mono/Gamma/Saturati on/Contrast		

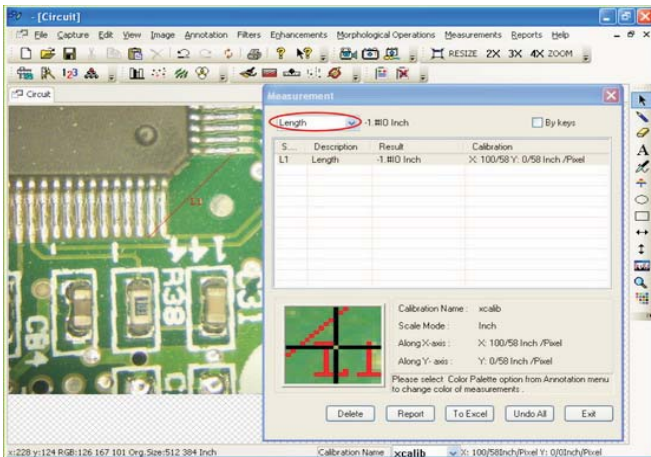


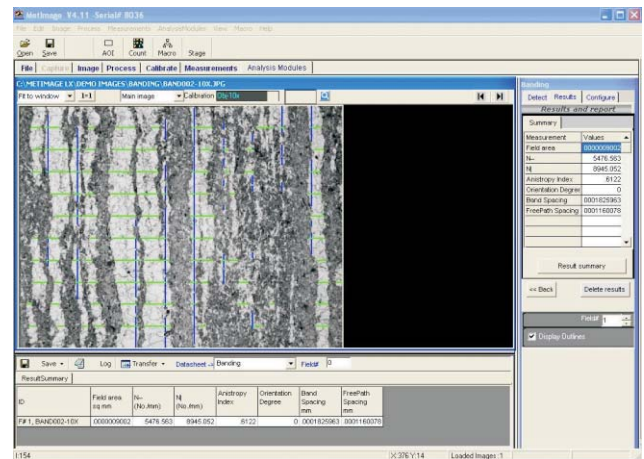
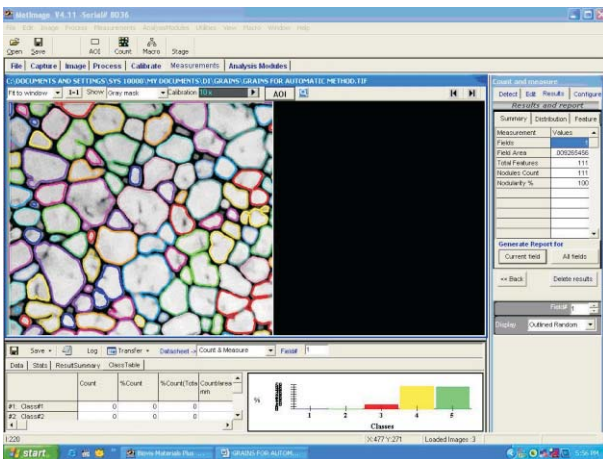
Image Analysis Software META VISION (433-101)

## Applications:

META VISION is an advanced metallurgical software, and suit a wide range of metallurgical applications with utmost metallurgical analysis & investigations. It is user friendly & very convenient to other equivalent metallurgical software.

## Functions:

- (A) Image Editing & View;
- (B) Morphometry Measurement;
- (C) Image Processing;
- (D) Routine Filters;
- (E) Special Filters;
- (F) Edge Detection.



Measure carbide banding levels according to ASTM E1268

## Features:

META VISION is suitable for a wide range of Image Analysis functions and the prominent functions are described hereunder:

### 1. Calibration:

- a) Special calibration, with Japanese test slide JIS (0.01 mm);
- b) Area by enclosed line controlled by four arrow keys available on keyboard arrows with zoomed Preview.

### 2. Count & Classification:

Identification of objects in an image, count them, obtain several features measurements. Objects identification by user or automatically. User defined classification on basis of size and intensity.

### 3. Threshold Practical Measurement:

Manual, auto bright and auto dark methods to identify Intensity range defined object to be measured. Various calculations & measurements available for selected particle are: dimensions, area, parameter feret, length, thread length, thread & fiber width,



**4. Morphometry Measurements:**

Line measurements for distance, length, width perimeter, angle, three point radius. Roundness, shape, orientation, elongation, equal circular diameter, equal sphere volume.

**5. Locational Analysis:**

Centroid X, Centroid Y, Major X1, Major Y1, Minor X1, Minor Y1, Major X2, Major Y2, Minor X2, Minor Y2, Box X2, Box Y2 & Box Area.

**6. Phase Analysis:**

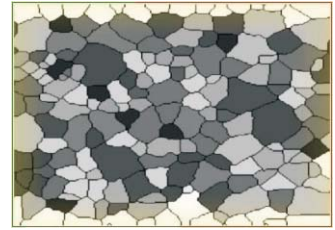
Measure area fraction & volume fractions. Identify multiple phases with Micro structure. Also delineate phase from the histogram as per ASTM standard E562 & E1245.SS.

**7. Nodularity:**

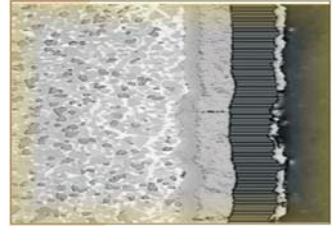
Measure Nodularity as per ASTM 247 standard. The Nodules & Flakes are separated on the basis of its shape and aspect ratio. The detail measurement of each micro structure is available for further analysis. The processed image displays non-Nodules in different color. The Nodules can be classify by its range on the basis of its size & shape.

**8. Porosity:**

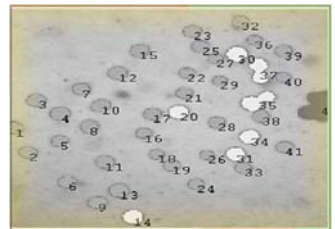
They are recognized on the basis of its intensity as per ASTM B-276 standard. The measurement of each pores displayed. The processed image displays pores in Red Color.



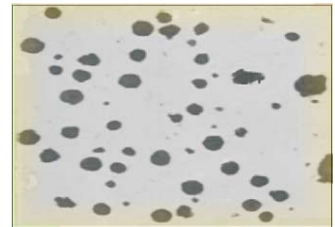
Grain Size (ASTM)



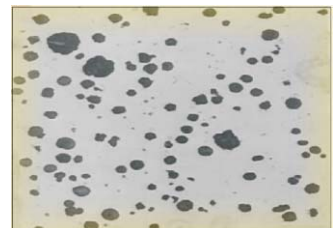
Coating Thickness



Counting



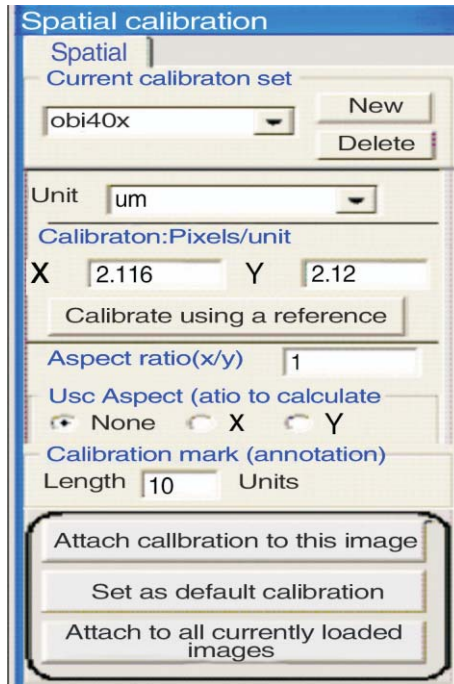
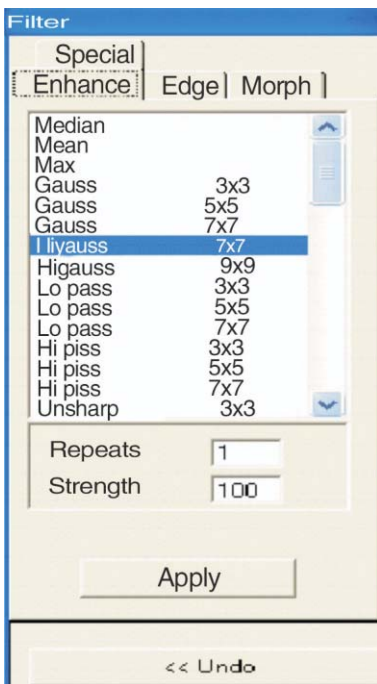
Nodularity



Porosity



Segmentation



## 9. Coating Thickness:

This application rapidly measures the thickness or width of a coating at multiple positions along a sample as per ASTM B487 Standards. Tabulated results available for min/max and mean of width Measured at various points of sample cross section.

## 10. Decarburisation:

Measured depth or width of decarburisation occurs as per ASTM 1077 standards.

## 11. Grain Size:

The module analysis Grain image and measure the Grain No & Grain size using ASTM E 112 method.

The option for measurement available are: 1.Manual trace;2.Popular comparison method;3.Quick single grain measurement; 4.ALA method; 5.Interception method. Various filters to make use defined templates. Grain boundary repair mathematical function.

## 12. Non-Metallic Inclusion:

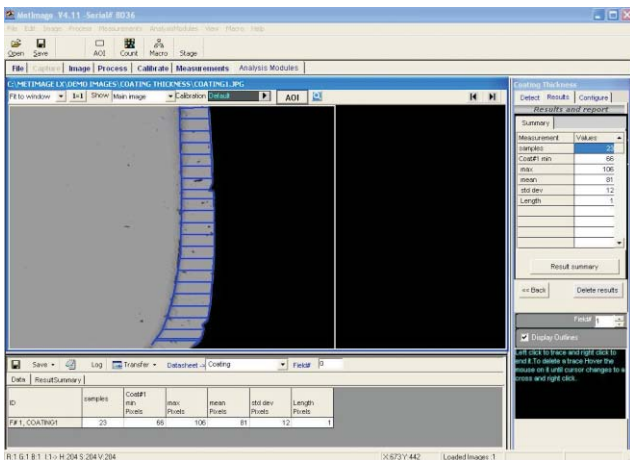
Measure inclusions and report ASTM E-45, E-1245 numbers, cumulative length width ratio.

## 13. Graphic Flakes:

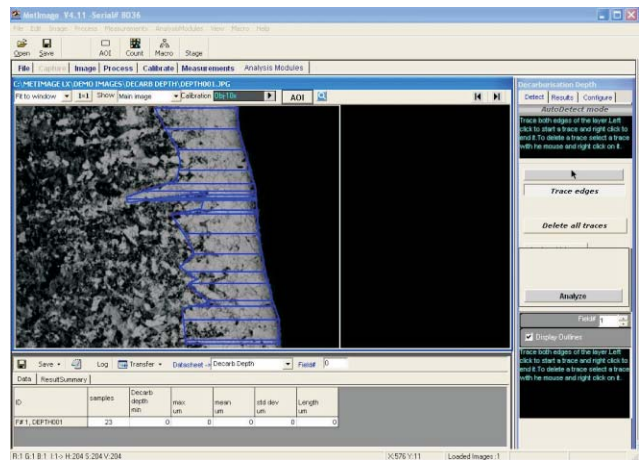
Graphite Flakes length, Width distribution and Percentage as per ASTM-A-247-67.

## 14.Report:

- a) Direct printout with original image, processed image & Tabular results.
- b) Export to MS EXCEL for further modifications.



Measure cross sectional thickness according to ASTM B487



Measure Decarb Depth according to ASTM E 1077

