



FCM2000W Computerized Metallurgical Microscope

Application

FCM2000W series, the computerized metallographic microscope is a trinocular inverted metallographic microscope. It is used to identify and analyze the combined structure of various metals and alloy materials. It is widely used in factories or laboratories for the identification of casting quality, raw material inspection or material processing. Metallographic structure analysis, and research on some surface phenomena such as surface spraying; metallographic analysis of steel, non-ferrous metal materials, castings, coatings, geological petrographic analysis, and microscopic research on compounds and ceramics in the industrial field Effective means.

Focusing mechanism

Coaxial focusing mechanism with coarse and fine adjustment of bottom hand position is adopted, which can be adjusted on the left and right sides. The fine adjustment precision is high. The coarse adjustment stroke is 38mm and the fine adjustment accuracy is 0.002.

Mechanical mobile platform

The large size platform of 180 × 155mm is adopted, and the right-hand position is set, which is in accordance with the operating habits of the general crowd. During the operation of the user, it is easy to switch the operation of the focusing mechanism and the platform movement and provide a more efficient working environment for the user.

Lighting system

The Epi-Kola lighting system has a variable aperture diaphragm and a center-adjustable field diaphragm. It uses adaptive wide voltage 100V-240V, 5W high brightness, and long-life LED lighting.





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Optical system	Limited-distance chromatic aberration optical system	Observation tube	45 ° tilt, trinocular observation tube, pupil distance adjustment range: 54-75mm, split ratio: 80:20
Eyepiece	- High eye point wide field plan eyepiece PL10X / 18mm - High eye point wide field plan eyepiece PL10X / 18mm, with micrometer (<i>Optional</i>) - High eye point wide field eyepiece WF15X / 13mm, with micrometer (<i>Optional</i>) - High-eyepoint wide-field eyepiece WF20X / 10mm with micrometer (<i>Optional</i>)	Objective lens (Long working distance plan achromatic objective lens)	- LMPL5X /0.125 WD15.5mm - LMPL10X/0.25 WD8.7mm - LMPL20X/0.40 WD8.8mm - LMPL50X/0.60 WD5.1mm - LMPL100X/0.80 WD2.00mm (<i>Optional</i>)
Converter	- Four-hole converter with internal positioning - Internal positioning five-hole converter (<i>Optional</i>)	Focusing mechanism	Low hand position coarse and fine adjustment coaxial focusing mechanism, coarse movement 38 mm per revolution; fine adjustment accuracy 0.02mm
Stage	Three-layer mechanical mobile platform, area 180mmX155mm, right hand low hand position control, Stroke: 75mm × 40mm	Workbench	Metal stage table (center hole Φ12mm)
Epi-illumination system	- Epi-Kola lighting system with variable aperture diaphragm and center adjustable field diaphragm, adaptive wide voltage 100V-240V, single 5W warm-color LED lamp, continuously adjustable light intensity - Epi-Kola lighting system with variable aperture diaphragm and center adjustable field diaphragm, adaptive wide voltage 100V-240V, 6V30W halogen lamp, continuously adjustable light intensity (<i>Optional</i>)	Polarized accessories	Polarizer insert, fixed analyzer insert, 360 ° rotating analyzer insert (<i>Optional</i>)
Color filter	Yellow, green, blue, matte color filters	Metallographic analysis system	FMIA2020 genuine metallographic analysis software, Sony chip 3 million camera device, 0.5X adapter mirror interface, micrometer.
Computer + Software	Yes		



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Overview:

The FMIA₂₀₂₀ version of the metallographic image analysis software system is our company's combination of current casting companies, auto parts companies, heat treatment companies, bearing steel industry, power system industry, railway parts industry, and various related testing companies' demand for metallographic detection to improve products. The pass rate helps to improve the inspection level of various laboratories. We collected the opinions of experts and teachers in various industries and developed this set of FMIA₂₀₂₀ version of the metallographic image analysis software system.

The software system contains about 700 commonly used sub-modules in 150 categories, basically covering the commonly used metallographic standards, and adapts to the requirements of most unit metallographic analysis and inspection. According to the needs of different industries, open and relevant categories are specified to meet industry testing requirements.

In view of the continuous increase of new materials and imported brand materials, materials and assessment standards that have not been entered in the software can be customized and entered.

Features:

Software installation is more intuitive and concise: The brand-new software installation, registration, and calibration boot mode are simple and clear, and can be completed through the default prompt.

Genuine software guarantee system: After the software installation is completed, first activate the genuine software, and then register the computer hardware ID to ensure the genuine rights and interests of customers.

Demand standards can be customized: In addition to the standard detection module, the detection module can be customized according to customer needs, such as: enterprise standards, special industry standards, etc.

Report template can be modified: Report templates can be customized for different companies.

Genuine software can be upgraded: Perform free software upgrades based on the implementation time of the National Standardization Committee.

Suitable for computer system: This software can be installed and run under Windows 7 and Windows 10.

The latest metallographic software standard: --- Selected excerpts

GB / T 6394-2017 Grain size measurement rating (grain boundary extraction, grain boundary reconstruction, single phase, dual phase, grain size measurement, rating)

GB / T 10561-2005 / ISO 4967: 1998 Determination of non-metallic inclusions in steel

GB / T 7216-2009 gray cast iron: graphite distribution shape, graphite length, number of pearlite, number of carbide, etc.

GB / T 9441-2009 Ductile iron: spheroidization rate, graphite size, pearlite quantity, carbide quantity, etc.

GB / T 26656-2011 vermicular graphite iron: graphite morphology, creep rate, number of pearlite, number of phosphorus eutectic, number of carbide, etc.

GB / T 18254-2016 Metallographic examination of high carbon chromium bearing steel



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GB / T 34891-2017 Rolling bearings_Technical conditions for heat treatment of high carbon chromium bearing steel parts
GB / T 1499.2-2018 Steel for reinforced concrete Part 2: Hot rolled ribbed steel bars
GB / T 1299-2014 Tool steel
GB / T 3246.1-2012 Microstructure examination method of deformed aluminum and aluminum alloy products_Part 1_Microstructure examination method
GB / T 13925-2010 Cast high manganese steel: grade of undissolved carbide, grade of precipitated carbide, grade of superheated carbide
JB / T 7946-2017 cast aluminum alloy metallography
JB / T 1255-2014 rolling bearings_High carbon chromium bearing steel parts heat treatment technical conditions
JB / T 9986-2013 Metallographic examination of tool heat treatment
QC / T 262-1999 Metallographic examination of carburized gears: needle length of martensite, carbide, austenite rating, austenite content
QC / T 502-1999 Metallographic inspection of automotive induction hardened parts
QC / T 553-2008 Automobile engine cast aluminum piston metallographic examination
TB / T 2942.2-2018 Cast steel parts for locomotives and vehicles Part 2: Metallurgical structure inspection map.
TB / T 2478-1993 Bullet metallographic rating chart
TB / T 2451-1993 Metallographic examination of non-metallic inclusions in cast steel
TB / T 2944-1999 carbon steel forgings for railway
DL / T 773-2016 12Cr1MoV steel spheroidization rating standard for thermal power plants_Ferritic and pearlite spheroidization microstructure characteristics
DL / T 773-2016 12Cr1MoV steel spheroidization rating standard for thermal power plants _Ferrite plus bainite or bainite spheroidization structure characteristics
DL / T 1422-2015 18Cr-8Ni series austenitic stainless steel boiler tube microstructure aging rating standard
ISO 4499-2016 Cemented Carbide-Metallographic Determination of Microstructure
ASTM A262-2015 Austenitic Stainless Steel Intergranular Corrosion Sensitivity Test Procedure
ASTM E45-2013 Evaluation method for the content of inclusions in steel.

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Basic functions:

1. Rating level: The implementation standard for the correct selection of materials, through the camera system of the metallurgical microscope, capture and take pictures of the sample metallographic structure, and enter the evaluation level interface:
 - (1) Automatic rating: There are quantitative standards (such as calculation formulas, percentage ranges, etc.) in the metallographic standards. The software automatically grades, gives the metallographic level, and generates a metallographic test report.
 - (2) Comparison rating: The software can also compare the sample map and the map in the gallery to determine the level artificially.



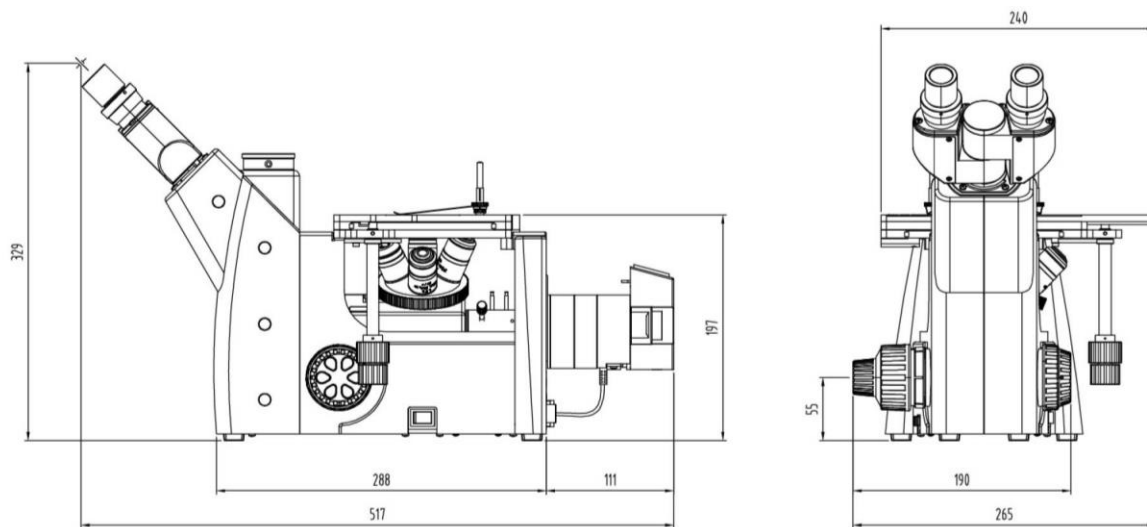
2. Geometric measurement
 The software provides a variety of measurement tools such as distance, rectangle, circle, polygon, polyline length, angle, straight line angle, radian, point-to-center measurement, etc. to meet the user's basic geometric measurement functions and obtain relevant measurement data.
 - (1) Data export: the measured data can be used to generate a dedicated measurement report with graphics and text, and can also be directly imported into EXCEL.
 - (2) Save the image: the measured data can be automatically integrated with the picture, and the accuracy of the measured part is displayed intuitively and clearly.
3. View Gallery
 The software provides the function of viewing gallery and provides users with the latest national standard level gallery.
4. Fixed printing
 The software provides fixed-size printing function, users can achieve fixed-size printing of pictures according to the actual printing multiple requirements.
5. Image stitching
 For customers who need to detect a larger field of view, the image stitching function is provided in the software to meet the needs of larger field of view image capture, which solves the embarrassment of unable to take pictures caused by the lack of microscope field of view.
6. Professional functions
 It provides customers with professional function customization windows and can customize relevant functional modules according to customer needs: such as confocal images, three-dimensional light maps, image databases, and image comparison.



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Composition of FMIA2020 metallographic analysis software system:

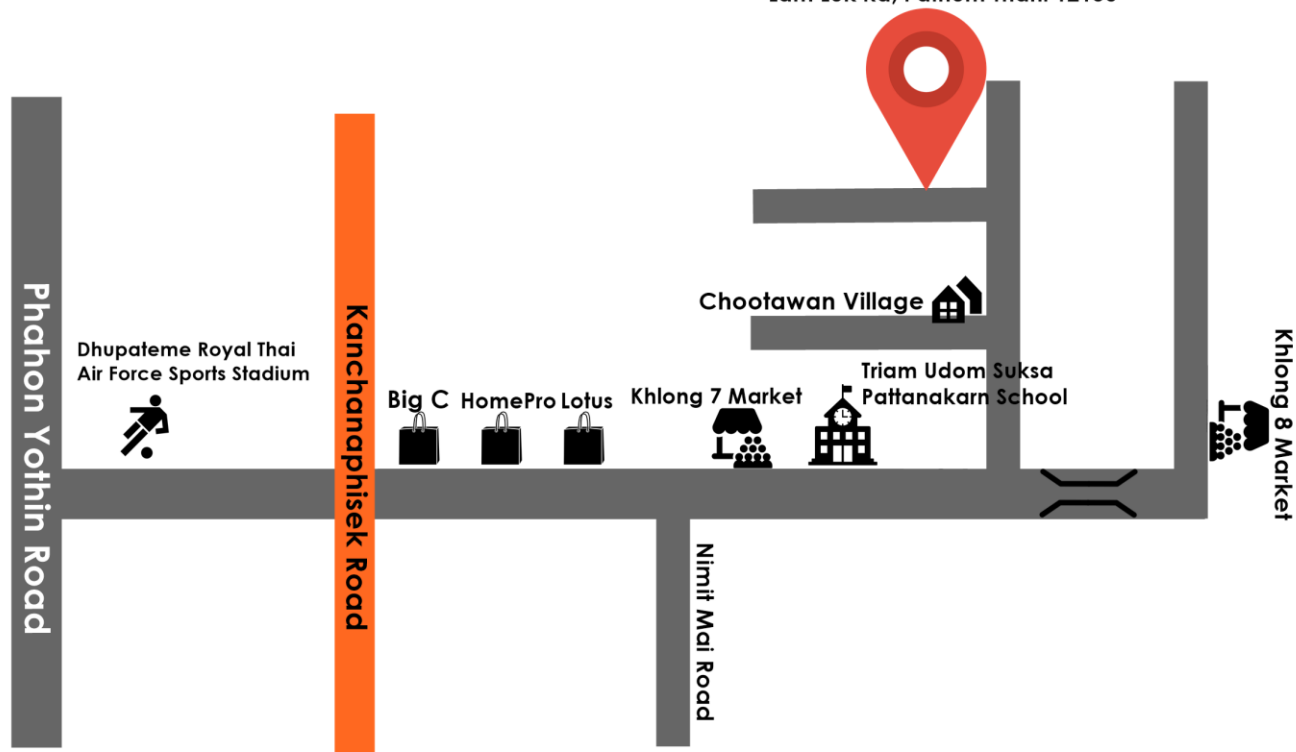
1. Software program FMIA2020 (U disk)
2. Dongle: USB type + dynamic code verification
3. Text information: "Instruction Manual" (on U disk)
4. 0.01mm micrometer scale.
5. CCD camera device.
6. Adapter mirror interface.





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