# HST 102-C Metallurgical Microscope

Note: The picture is for reference only

## Overview of HST 102-C Metallurgical Microscope

HST 102-C computerized metallurgical microscope is a trinocular inverted metallurgical microscope. It adopts an excellent infinity optical system and a modular functional design concept. This microscope is equipped with functions such as polarized light observation and bright/dark field observation.

The compact, stable and high-rigid main body fully meets the anti-vibration requirements for microscope operation. The ergonomic design makes operation more convenient and comfortable, with a larger operating space.

It is suitable for the microscopic observation of metallographic structures and surface morphologies, making it an ideal instrument for researches in metallography, mineralogy and precision engineering.

**Observation system**

The hinged binocular observation tube is tilted at a 45 ° angle, and does not require long periods of looking down or up during operation,

allowing the operator's neck and shoulders to be effectively released. The market for flat field wide-angle eyepieces can reach up to 22mm, making visual observation wider and more comfortable, and can be adapted to rubber eye masks.

**Mechanical stage**

Mechanical mobile stage with a built-in rotatable circular stage. The irregular observation window set in the plate is suitable for microscopic observation of samples of different specifications. When conducting polarized observation, the circular stage can be rotated to meet the requirements of polarized light inspection.

**Professional semi chromatic aberration corrected metallographic objective lens**

The objective lens strictly selects high transmittance lenses and advanced coating technology, which can truly reproduce the natural color of the sample. The design of the semi complex achromatic objective lens has excellent chromatic aberration correction performance, improving the contrast and clarity of observed images.

**Simple polarization observation**

Insert the polarizer and analyzer into the designated position for simple polarization observation. It is convenient to observe the state of the sample under different polarization angles of light without moving the sample.

**Specification List of HST 102-C Computerized Metallurgical Microscope**

| Standard Configuration | | Model |
|---|---|---|
| component | spec | HST 102-C |
| optical system | Infinite chromatic aberration correction optical system | ● |
| Observation tube | Hinged binocular tube, tilted at 45 ° ; The range of pupillary distance adjustment is 53-75mm. | ● |
| eyepiece | Flat field large field eyepiece WF10X/22mm | ● |
| Infinite distance | PL L5X/0.12 BD WD9.70mm | ● |

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| | PL L10X/0.25 BD WD9.30mm | ● |
| | PL L20X/0.40 BD WD7.2mm | ● |
| | PL L50X/0.70 BD WD2.50mm | ● |
| transformer | Ball internal positioning five hole converter | ● |
| focusing system | Coarse micro coaxial focusing with locking device, micro grid value: 2 μ m | ● |
| stage | Mechanical mobile stage, external dimensions (242 * 200mm), movement range (30 * 30mm) | ● |
| lighting system | Dimensions of circular rotatable loading platform: maximum outer diameter of Ø 130mm, minimum aperture less than Ø 20mm | ● |
| Polarized Attachment | 12V50W halogen lamp with adjustable brightness. | ● |
| Color filter | Polarizer group, polarizer group | ● |
| Metallographic analysis system | Equipped with frosted glass and yellow, green, and blue color filters | ● |
| transformer | FMIA2026 genuine metallographic analysis software, USB2.0 Sony chip 12 megapixel camera device, 0.65X adaptive mirror interface, micrometer (with specifications of 100x0.01mm, 100x0.01cm, calibration points d=0.15mm, d=0.07mm). | ● |
| **Optional configuration** | | |
| component | **spec** | |
| eyepiece | Flat field large field differentiation eyepiece WF10X/22mm | O |
| Optional objective lens (Infinite distance) Bright and dark field objective lens computer | PL L40X/0.60 BD WD3.00mm | O |
| | PL L60X/0.75 BD WD1.90mm | O |
| | PL L80X/0.80 BD WD0.80mm | O |
| | PL L100X/0.85 BD WD0.40mm | O |
| component | HP Business Machines | O |

**Note:“ ■ ” is the standard configuration； “ O”is an optional item.**

## ❖ Multiple software packages (optional)

| Name | Function Introduction |
|---|---|
| FCL-RS Image measurement software | FCL-RS image measurement software supports multiple international languages and has functions such as image capture, image measurement (including calculation of perimeter, width, radius, circumference, and angle), image processing (automatic exposure, white balance, black balance, etc.), panoramic automatic stitching, video EDF depth expansion, video overlay time, scale, data measurement, and accurate layer fusion of images. It can also save multiple image file formats.<br>The camera is available in pixel sizes of 20 million, 12 million, and 5 million. |
| FMIA2026Metallographic analysis software | The FMIA2026metallographic image analysis software system includes 150 categories and approximately 760 commonly used sub modules, covering common metallographic standards and meeting all requirements for metallographic analysis and inspection. The analysis of the microstructure of all materials, including grain size, non-metallic inclusions, steel microstructure, decarburization layer, gray iron, ductile iron, carbon steel spheroidization, etc., in addition to functions such as metallographic teaching, image measurement, national standard image library, and fixed magnification printing.<br>● Customize testing modules according to customer needs, such as enterprise standards, industry standards, etc.<br>● Tailor made report templates for different enterprises.<br>● According to the implementation time of the National Standardization Committee standards, free software upgrades will be carried out.<br>● This software can be installed and run on Windows 10 and Windows |

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| Weld penetration software | Weld penetration software is a professional version of macro measurement software for weld penetration developed according to weld standards. The software has functions such as measuring the weld penetration depth of the inner weld, the weld penetration depth of the outer weld, the width of the inner weld, the width of the outer weld, the excess height of the inner weld, the excess height of the outer weld, the overlap of the inner and outer welds, the center offset of the inner weld, the center offset of the outer weld, the diameter and density of the pores. At the same time, macroscopic metallographic examination of welding seams can also be carried out for defects such as welding porosity, slag inclusion, cracks, incomplete penetration, incomplete fusion, and undercutting. Finally, the weld seam measurement report can be exported.<br>Basic software functions:<br>● Professional measurement of weld penetration depth (measuring the weld penetration depth inside the weld, the weld penetration depth outside the weld, the weld width inside the weld, the weld width outside the weld, the weld excess inside the weld, etc.);<br>● It has functions such as fixed magnification printing, geometric measurement, image acquisition, image processing, and image stitching.<br>● We can customize software report templates and measurement functions according to customer needs. |
| Porosity software | The porosity software is suitable for measuring and analyzing the porosity of all materials, and complies with VW50093 (the latest casting porosity inspection standard and method) and VW50097 (porosity standard) measurement and analysis.<br>basic function:<br>● It has functions such as image acquisition, image processing, image stitching, geometric measurement, hardware calibration, and report generation.<br>● It can analyze the circumference, area, major axis, minor axis, equivalent circle diameter, aspect ratio, circularity, and other data of |

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| | each pore. |
| Granular software | The granularity software is suitable for analyzing and measuring different types of particles, and has multiple module functions to choose from. (Measurement of area, color extraction, clear and nearly circular particles, blurry particles, segmentation of non-circular adhesive particles, segmentation of circular adhesive particles, blurry misty particles, particles with voids in the middle, etc.)<br><br>basic function:<br><br>● It has functions such as image acquisition, image processing, image stitching, geometric measurement, hardware calibration, and report generation.<br>● It can analyze the circumference, area, major axis, minor axis, diameter, shape ratio, total number of particles, average diameter, and other data of each particle. |

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# Authentication Certificate of Quality Management Systems

Registration No.19924Q01775R1S

**This is to certify that**

## JINAN HENSGRAND INSTRUMENT CO., LTD.

Unified Social Credit Code：91370104684680659H

Registered/Office/Production Address：No. 4915, Jingshi West Road, Huaiyin District, Jinan City, Shandong Province

Is in conformity with:

## GB/T 19001-2016/ISO 9001:2015

**The certificate is valid for the following scope:**

Trial assembly and sales of equipment

This certificate should be used effectively with the legal requirements of the administrative license, qualification license, compulsory certification, which the certification scope involved. In the case that the organization regularly receives surveillance assessments, the certificate shall be valid when used together with the Quick Response Code.

Date of Issue：2024-12-31
Date of Expiry：2027-12-30
Date of Initial Certification：2021-12-31
Date of Change：2024-12-31

General Manager

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF
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China Standard Huaxin (Beijing) Certification Center Co.,Ltd.

Address of Certification Authority：5 Floor,YuQuan Building,No.3 Shijingshan Road,Shijingshan District,Beijing Tel：010-88255986 P.C.：100049
Note：The detailed information is available on the Certification and Accreditation Administration of the People's Republic of China offical website (www.cnca.gov.cn) the authority's website(www.cshcc.cn) and the Quick Response Code on the left.

# MACHINERY DIRECTIVE ATIESTATION OF CONFORMITY

Technical file of the company mentioned below has been inspected and audit has been completed successfully.

2006/42/EC Machinery Directive Annex VIII has been taken as references for these processes.

| | |
|---|---|
| Company Name | : **JINAN HENSGRAND INSTRUMENT CO., LTD.** |
| Company Address | : NO.4915, WEST JINGSHI ROAD, JINAN, CHINA |
| Related Directives and Annex | : **2006/42/EC Machinery Directive/Annex VIII** |
| Related Standards | : **EN ISO 12100:2010, EN 60204-1:2018** |
| Product Name | : **TESTING MACHINE** |
| Report No and Date | : TCF-JHIC230128-MD |
| Product Brand/Model/Type | : WDS-1, WDS-2, WDS-3, WDS-5, WDS-10, WDS-20, WDS-30, WDS-50, WDS-100,WDS- 200, WDS-300, WDS-500, WDW-1, WDW-2, WDW-3, WDW-5, WDW-10, WDW-20, WDW-30, WDW-50, WDW-100, WDW-200, WDW-300, WDW-500, WDW-600, WDW- 1000, WE-300, WE-600, WE-1000, WE-2000, WEW-300, WEW-600, WEW-1000, WEW- 2000, WAW-300, WAW-600, WAW-1000, WAW-2000, WAW-3000, WAW-5000, WAW- 6000, LAW-1000, JB-300B, JBS-300, JBW-300, JB-500B, JBS-500, JBW-500, JBW-750, CST-50, VU-2Y, VU-1S, DWC-40, DWC-60, DWC-80, DWC-100, DWC-196, YES-2000, YES- 300, YAW-1000, YAW-300, YAW-2000, YAW-3000, YAW-5000, NDS-200, NDS-500, NDS- 1000, NDS-2000, NDW-200, NDW-500, NDW-1000, NDW-2000, NDW-3000, NDW- 5000,NDW-10000, HEZ-3, HEZ-6, HEZ-10, JWJ-10, TLS, TLW, HST-P50, HST-P100, HST- P200, HST-P300, RDJ, NDT, DWTT, GBW-60, GW-50, HST, XNR-400 |

| | |
|---|---|
| Certificate Number | : **M.2023.206.C81366** |
| Initial Assessment Date | : 31.01.2023 |
| Registration Date | : 01.02.2023 |
| Reissue Date/No | : - |
| Expiry Date | : **31.01.2028** |

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