



# CIENTEC

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# 2024 PRODUCT CATALOG

METALLOGRAPHIC EQUIPMENT AND CONSUMABLES

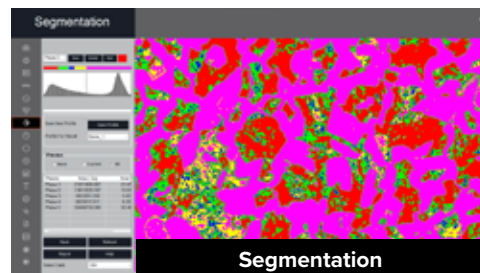
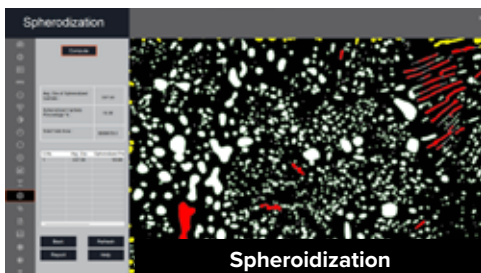
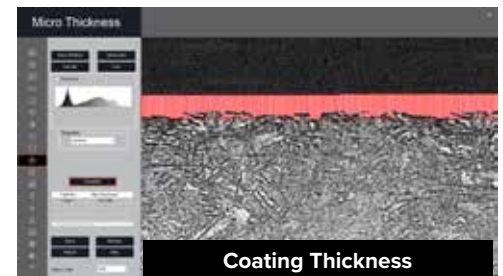
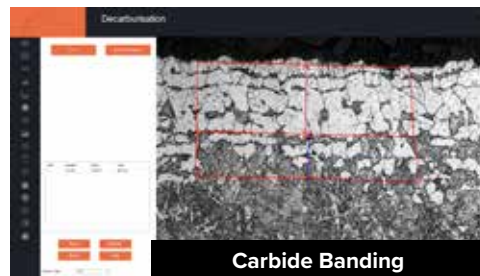
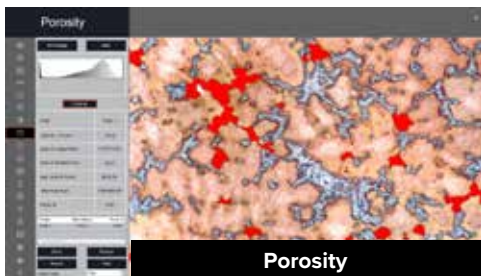
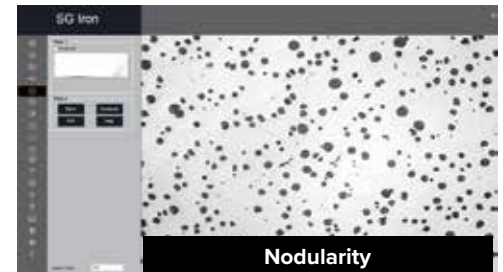
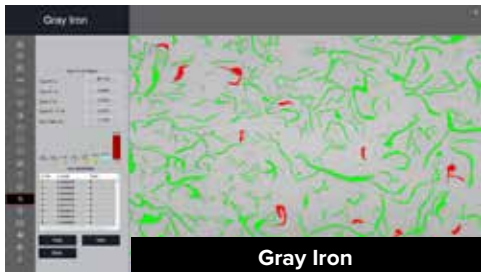
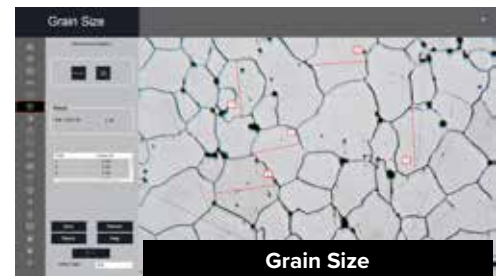
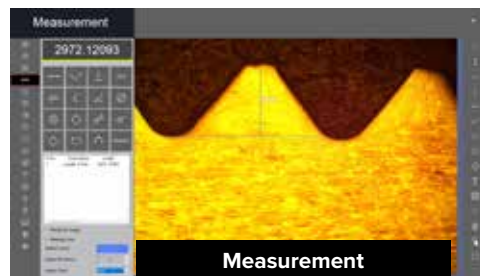
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ABRASIVE & PRECISION CUTTING  
COMPRESSION & CASTABLE MOUNTING  
GRINDING & POLISHING  
MICROSCOPY & ANALYSIS  
HARDNESS TESTING  
LAB FURNITURE

# IMAGE ANALYSIS SOFTWARE











## MATERIALS PLUS

- Metallographic Image Analysis Modules
- Basic Measurements
- Grain Size
- Gray Iron
- Spheroidal or Ductile Gray Iron
- Carbide
- Porosity
- Inclusion Rating
- Coating Thickness
- Spheroidization
- Decarburization
- Segmentation
- DAS - Dendritic Spacing
- Stitching



# METALLOGRAPHIC SOFTWARE

## Measurement Modules

MODULE	MEASUREMENT	MEASUREMENT BASIS	ICON / web link
Measurement	Manually draw lines on traces, shapes	Straight length, angle, curved length, width, area, radius, perimeter, area by keyboard	
Grain Size	Heyn lineal intercept procedure, Abrams Three-Circle Procedure, Random Line Intersection Methods, Jeffries Planimetric Method, Comparison Procedure Method	ASTM E112	
Gray Iron	Graphite flakes are described by the type and distribution of graphite in cast iron with the following three classifications: Type VII for graphite form, A-E distribution of graphite and graphite size (1-largest to 8-smallest)	ASTM A-247	
SG Iron	Nodularity describes the type and distribution of graphite in cast iron with the following three classifications: Types I-VI for graphite form, A-E distribution of graphite and graphite size (1-largest to 8-smallest)	ASTM A-247-67	
Carbide Banding	Estimates the amount of iron carbide or cementation in steels and cast irons. Carbide is measured as a volume fraction	ASTM E562 & E1245	
Porosity	Porosity are voids in the material caused by entrapped air and incomplete or poor sintering. Porosity can be measured as a volume fraction	ASTM E562 & E1245	
Inclusion	Characterizes the type, size and severity of the inclusion in wrought steel. The types include: SULFIDE (A TYPE), ALUMINA (B TYPE) SILICATE (C TYPE), GLOBULAR (D TYPE). Size is characterized as H-heavy or T-thin. Severity Level is based on the number or length	ASTM E45	
Coating Thickness	Measures a coating thickness after cross sectioning the specimen	ASTM B487	
Spheroidization	Nodules acquire blue color and non-nodules are set to a red color. Nodules are designated by Roman numbers from I to VI and by size using Arabic numbers 1 to 8. The results are reported along with the calculated nodules/sq mm	ASTM A892	
Decarburization	Decarburization is the loss of carbon at the metal surface due to chemical reaction(s) with the contacting media. The analysis estimates the average or greatest depth of decarburization in hardened or non-hardened steel products	ASTM E1077	
Segmentation or Phase Analysis	Phases are defined as physically homogenous and distinct constituents of the material. The phases are partitioned or segmented based on the intensity / gray scale of the various constituents and are characterized and measured using area or volume fraction measurements	ASTM E562 & E1245	
DAS (Dendrites)	Dendritic Arm Spacing (DAS) measures the mean spacing, minimum and maximum spacing as well as the standard distribution.		
Stitching	Stitching is the process of combining multiple images together for higher magnification analysis over a larger area. For example, this would be very useful for analyzing the thickness of a thin coating over a larger range.		

## WELD CHECK

- Welding Features
- Leg Lengths
- Depth of Penetration
- Throat Height
- Root size
- Angle measurements
- Plate thickness and % weld penetration
- Toe undercut
- Face and Root reinforcement thickness

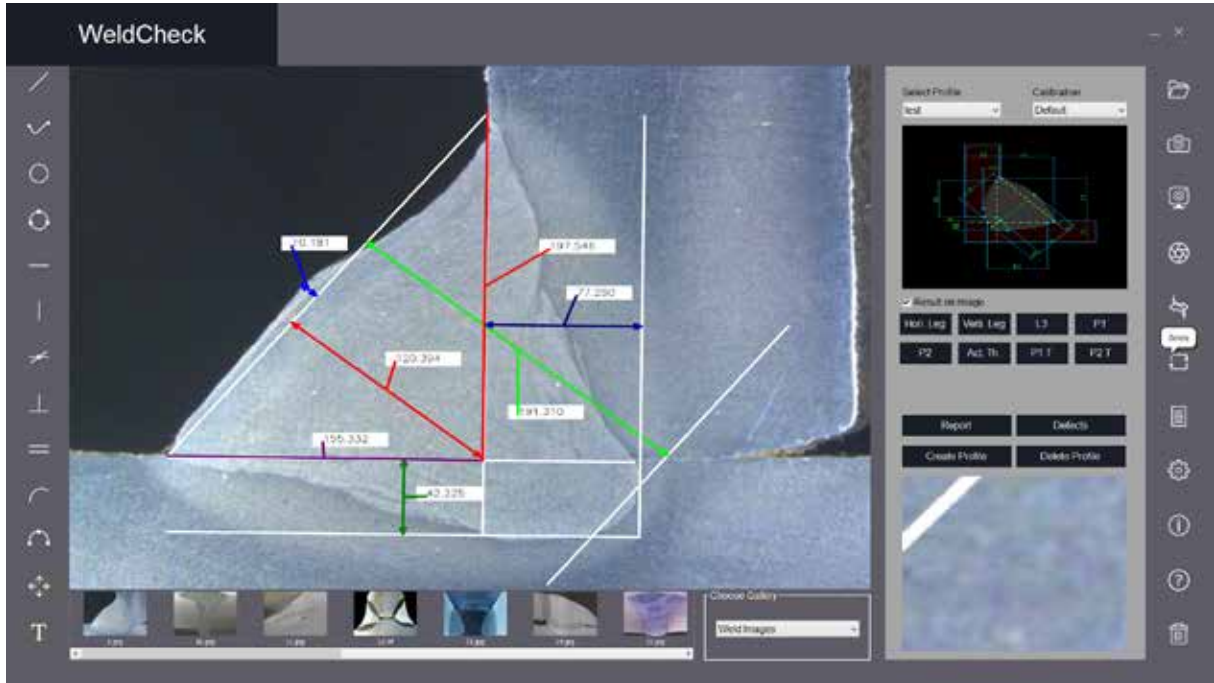


## HARDNESS PRO

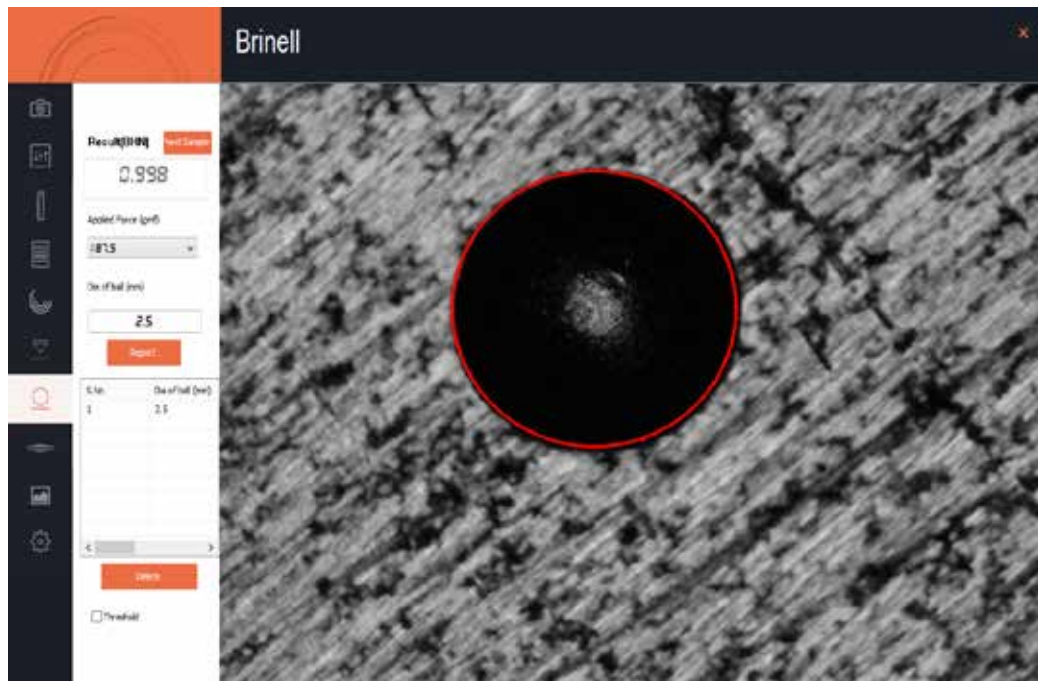
- Automatic or Interactive measurement of Vickers, Knoop and Brinell Indents
- Manual measurement on live image or acquired image
- Automated calculation of the best circumference minimizes the average quadratic error
- Image acquisition in high resolution 64-bit Colors
- In the event, that the automatic measurement fails, the program offers the possibility to manually measure through the acquisition of three points in Brinell, D1 and D2 in Vickers and Simple L in Knoop
- Accuracy up to 0.001  $\mu\text{m}$
- Multi-field analysis
- Case Hardness depth (CHD) measurement is automatic

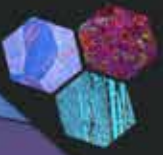


## WELD CHECK Measurement Module



## HARDNESS PRO Measurement Module





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