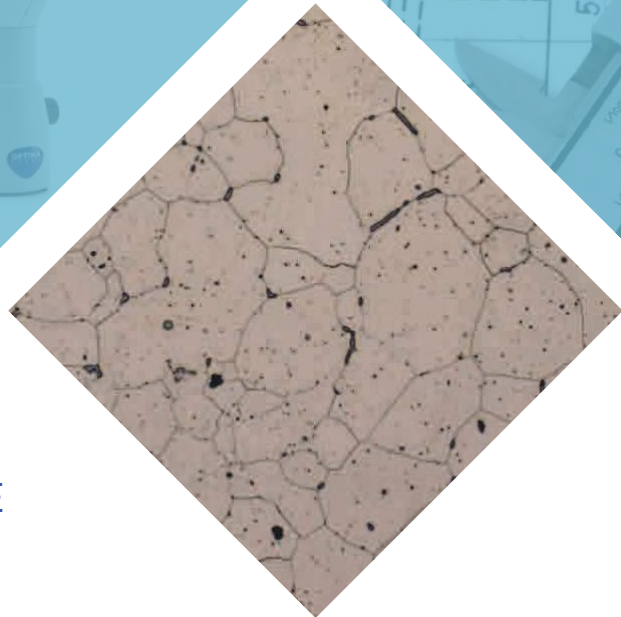
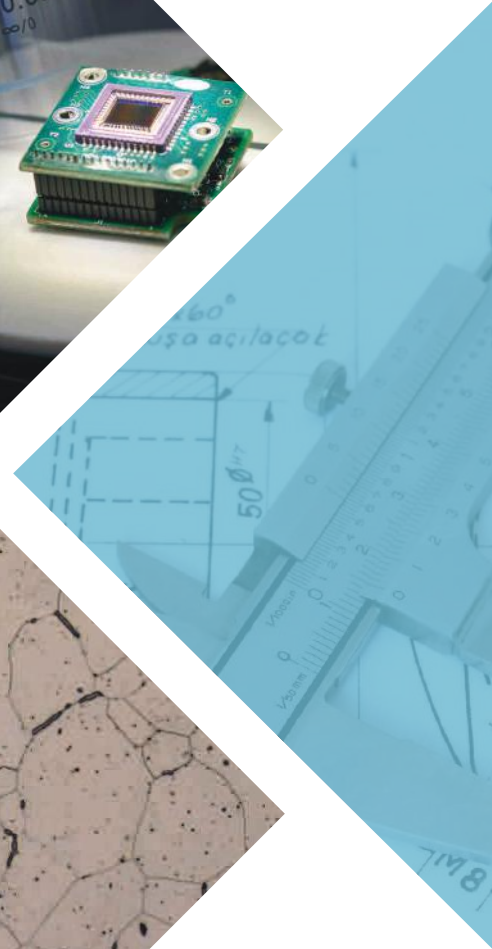


IMAGING SOLUTIONS FOR MATERIALS ANALYSIS



- DIGITAL CAMERAS
- IMAGE ANALYSIS SOFTWARE
- IMAGE DATABASE MODULE
- PHASE QUANTIFICATION MODULE
- GRAIN SIZE MEASUREMENT MODULE
- CAST IRON MICROSTRUCTURE ANALYSIS MODULE
- DEDICATED OPTICAL EQUIPMENT



PRESENTATION

Founded in 1994, Clara Vision is a French company that specialises in **scientific and industrial imaging**. It is located in "Optical Valley", 15 km south west of Paris city centre.

We have been designing and developing our **image acquisition** and analysis software packages for over 25 years. They are essentially used for **quality control and research** applications.

We have an extensive product range: **from the most simple camera for optical microscopy** up to **complete imaging systems**, we will help you find the equipment that is best suited to your requirements.

Clara Vision has a network of dedicated distributors both in France and internationally.

Our principal fields of activity are **metallography, weld seam quality control, industrial maintenance, high-speed video, and optical microscopy.**



DIGITAL CAMERAS

Sony sensors

High frame rate

Excellent sensitivity

Accurate colours



CV3-2 DIGITAL MICROSCOPE CAMERA

Extra wide sensor for improved field of view...

- CMOS colour digital camera
- 2.3 Megapixel resolution (1936*1216)
- 40 frames/second
- 1/1.2" sensor
- C mount
- USB 3.0 connectivity

CV3-3 DIGITAL MICROSCOPE CAMERA

An excellent compromise between speed and resolution...

- CMOS colour digital camera
- 3 Megapixel resolution (2056*1536)
- 57 frames/second
- 1/1.8" sensor
- C mount
- USB 3.0 connectivity

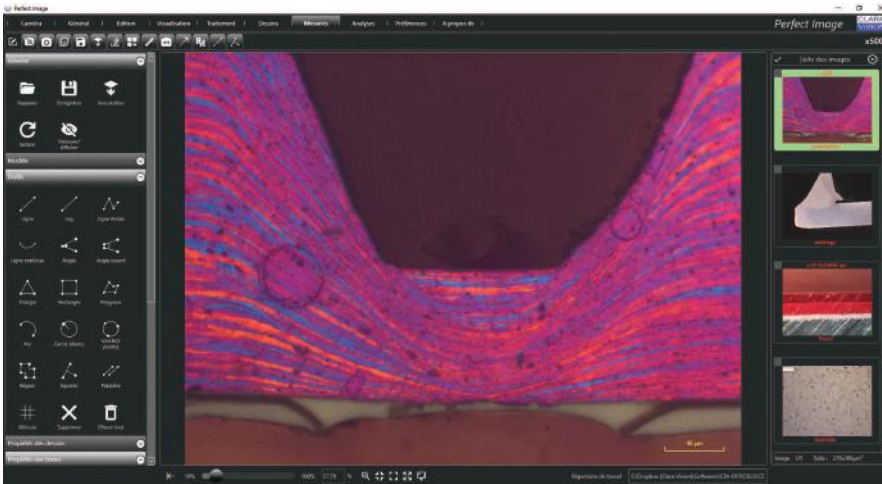
CV3-5 DIGITAL MICROSCOPE CAMERA

Large sensor and 5 megapixel resolution

- CMOS colour digital camera
- 5 Megapixel resolution (2456*2054)
- 36 frames/second
- 2/3" sensor
- C mount
- USB 3.0 connectivity



PERFECT IMAGE SOFTWARE



PI Presentation

Image acquisition

Clear, straightforward camera settings adjustment (manual or automatic exposure, white balance, etc...).

Storage and recall of acquisition parameters

The acquisition parameter storage and recall feature enables you to reload your camera's settings quickly and easily, enabling you to acquire replicable images that are consistent across all of your reports.

Image display

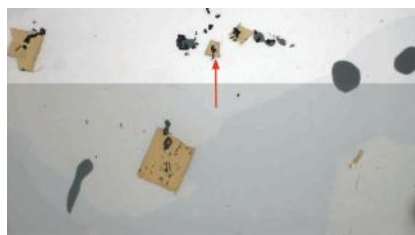
The different display modes: full screen, image scaling, zoom, etc... are a real plus when displaying your images. The acquired images are displayed in a gallery of adjustable thumbnails, for quick and easy inspection.



HDR image

HDR feature

With complex images, it can often be tricky to avoid reflections and/or overexposure. High Dynamic Range (HDR) imaging enables image contrast adjustment on images containing both very bright and very dark areas in the same field of view. Perfect Image automatically captures a series of images using different exposure times, so as to build an image with perfect contrast levels.



Contrast/light compensation

Image optimisation

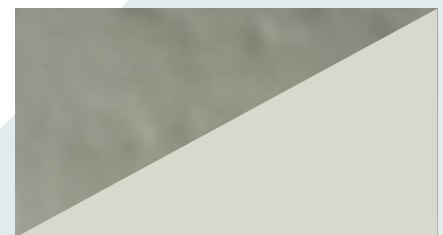
Even with the best image acquisition technology, you may sometimes wish to work on the images post-acquisition, whether to eliminate artefacts or simply crop the image. Perfect Image offers a full palette of image processing tools and features that can be used individually and interactively.

Interface

The Perfect Image software package boasts a clear, customisable and practical interface for all user profiles. The most frequently used functions are accessible directly from a customisable toolbar, so that the user can concentrate on what's most important: the sample.



Camera settings



Before / after

Background correction / Shading

Perfect Image's shading (background) correction feature enables you to standardise the background on your image, so as to make it easier to use and analyse, especially if thresholding (for phase analysis in particular).



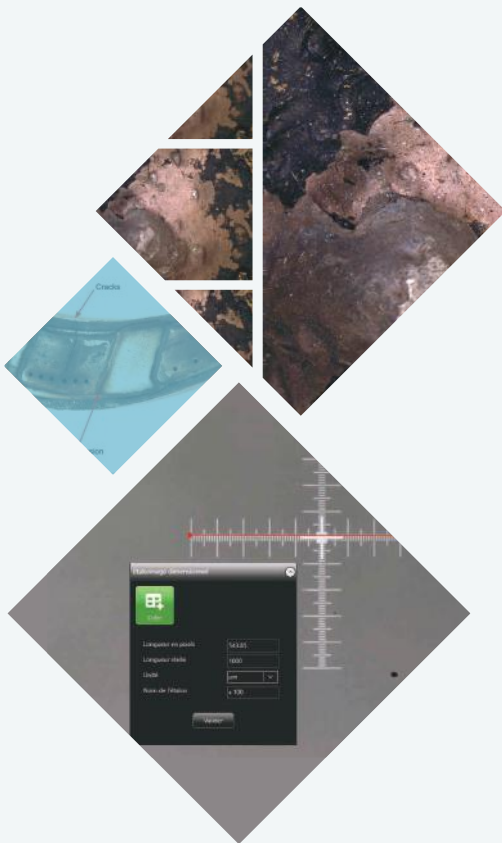
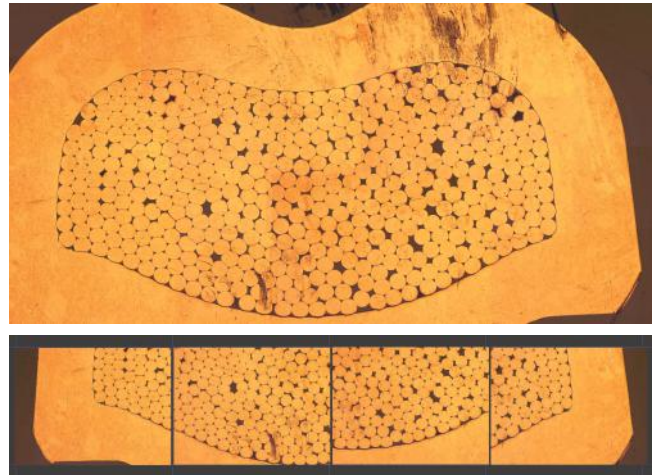
PERFECT IMAGE

Metaview

Quick, user-friendly creation of panoramic images

The **Metaview feature (image stitching)** enables **automatic assembly of adjacent images, so as to create panoramic images that extend beyond the field of view of your microscope.** No motorisation is required. Move the XY stage manually to inspect the entire sample, and Metaview will automatically build the cartography.

Any colour, light or shading variations are automatically eliminated from the final panoramic image, which is just perfect!



Multifocus

Instant creation of images with extended depth of field

The **Multifocus feature** (extended depth of field) enables you to **create stacks of images with different focal lengths, so as to compile a perfectly sharp image.** No motorisation is required. The user adjusts the fine focus to capture a large number of images at different points on the Z axis, creating a single image that is perfectly sharp throughout.

Calibration

Perfect Image makes it **easy to calibrate all your optical equipment.**

After capturing your images, the calibration data is automatically saved with the image file, providing perfect traceability and minimising the risk of error. **Scales are also embedded automatically.** These can be completely configured by the user. With compatible indexed microscopes, lenses are automatically identified, eliminating any risk of error.

Annotations

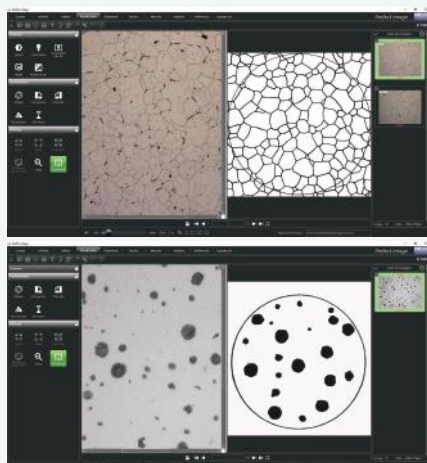
In order to enhance image content, **annotation tools such as lines, arrows, circles, ellipses, rectangles, squares and text boxes** are available. These annotations can be stored as overlays, or merged with your image.

Comparison between your images and reference images

Once your optical equipment is calibrated, Perfect Image enables you to **compare your live or still images to automatically scaled reference images!** Perfect Image provides the following reference images: ASTM E 112, ISO 643, ISO 945. Further reference images can be incorporated easily.

Reporting: Simple, efficient report creation

Creating a report can sometimes turn out to be the most time-consuming part of your analysis...Our Perfect Image software package affords **simple, user-friendly exports of your images to Word or Excel** at the click of a mouse. **Full automatic report templates are available with the software,** in various formats such as pdf, html, xml, etc...





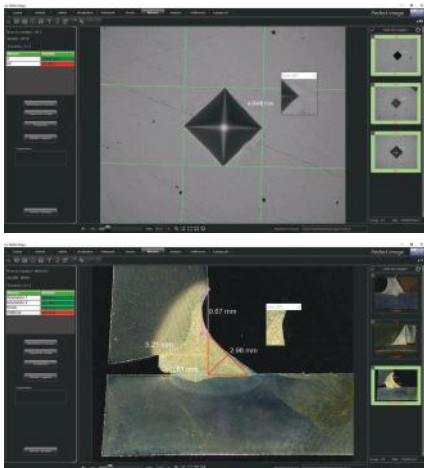
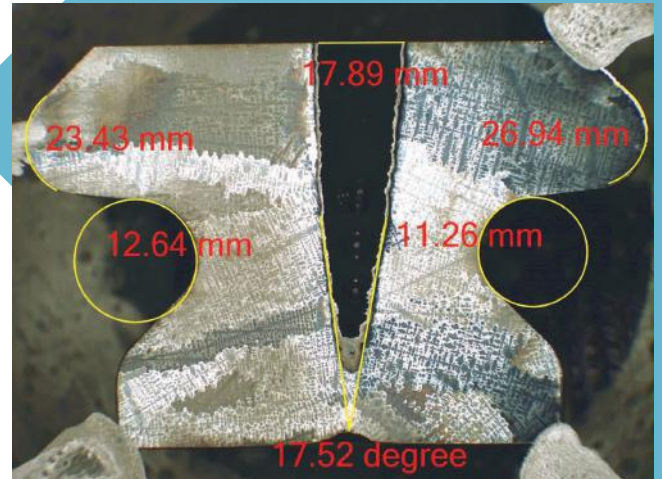
PERFECT IMAGE

Measurements

Our Perfect Image software provides **many measurement features**, ranging from the most basic requirements right up to the most demanding of applications.

Simple interactive measurements

Measurements can be carried out directly on the displayed image in real time, or on the captured image: **lengths, angles, perimeters, surface areas, etc...** Results are exported to a spreadsheet with a simple click.



Customised measurement tables

Perfect Image's **advanced dimensional measurement feature** enables the operator **to create completely customised measurement tables** for the most repetitive tasks. It means the user can react easily to all types of issues.

The most common measurement features are available. Each measurement can be compared to tolerance levels set by the operator (min, max, min alert, max alert). Operations between measurements can be used to calculate other results, for example Brinell hardness or Vickers hardness...

« Pass/Fail » immediately for each measurement!

All of the images and results for a given analysis are automatically stored, ready for use in statistics or in an analysis report.

Inspection process

1. ACQUISITION

2. ANALYSIS

3. RESULTS

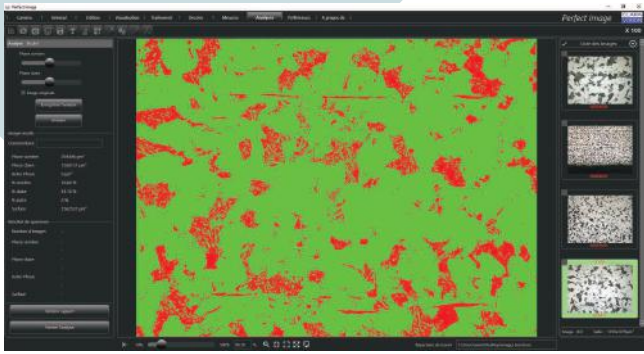
4. REPORT AND STATISTICS



This feature makes Perfect Image a versatile tool that can **perform multiple tasks in the laboratory.**



PERFECT IMAGE



Phase analysis

Perfect Image's **phase analysis feature** makes it possible to **quantify the occupation rate for one or more phases in a microstructure, by selecting their colour or grey scale (colour or monochrome thresholding).**

The analysis can be carried out for the entire image, or for an area of particular interest, and any artefacts can be eliminated automatically or manually.

The results are then expressed as calculations of the proportional surface area for the different phases.

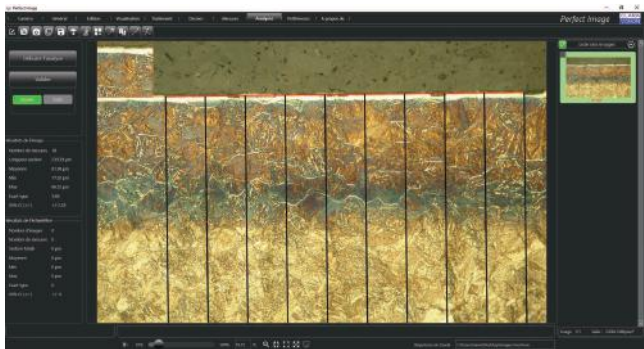
All of the images and results for a given analysis are automatically stored, ready for use in statistics or in an analysis report.

Inspection process



For more precise analysis, such as **granulometry analysis**, Perfect Image functionality can be extended through the « **Perfect Image Gold** » add-on.

Perfect Image's ASTM E 562 module also enables phase quantification (Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count).



Measurement of layer thickness

Perfect Image software's **layer thickness measurement analysis functionality enables measurement of the thickness of coating and layers**, as well as decarburisation levels (total/partial decarburisation).

All of the images and results for a given analysis are automatically stored, ready for use in statistics or in an analysis report.

Inspection process



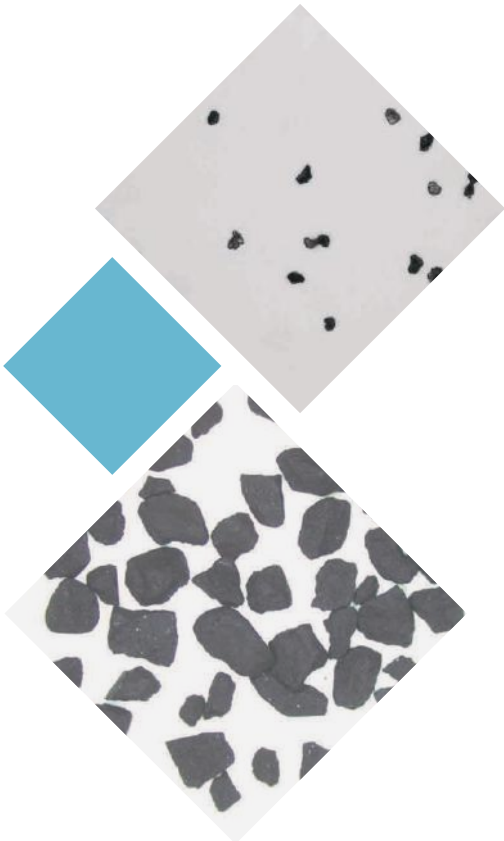


PERFECT IMAGE GOLD

Applications

Perfect Image's GOLD module is essentially used for **granulometry analysis, phase analysis, porosity measurement, object counting, etc.**, in many fields of activity: **Metallurgy, Pharmaceuticals, Quality Control...**

The tools provided by the GOLD module **enable automation of repetitive tasks** and therefore the analysis of a greater number of samples.



Tools and Automation

Our **GOLD module characterises the morphology of objects**, precisely and simply. All the different steps in object analysis are handled by the GOLD module, from characterisation of the sample through automated analysis right up to the presentation of results and production of a report.

Many different filters, based on shape or dimensions are provided in the GOLD module. These filters are the result of mathematical morphology techniques, such as erosion, dilation, skeleton, watershed, hole filling, clear borders, cleaning, automatic separation... The filters can be configured by the operator.

The GOLD module also contains a powerful macro command editor, for **automating repetitive tasks**. These macro commands are created using a step-by-step learning method of the different tasks to be performed. They are also designed to be compatible with VbScript commands (Microsoft VisualBasic programming language). The simple macro commands may call other macros.

Reports and Statistics

All of the **results can be exported to Excel**. The operator can then use Excel functionality to create and edit full reports.

Inspection process





ADD-ONS

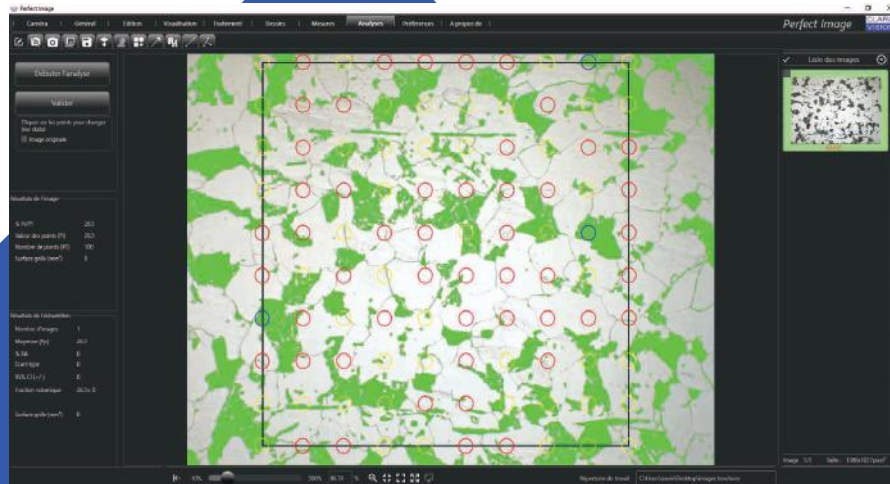
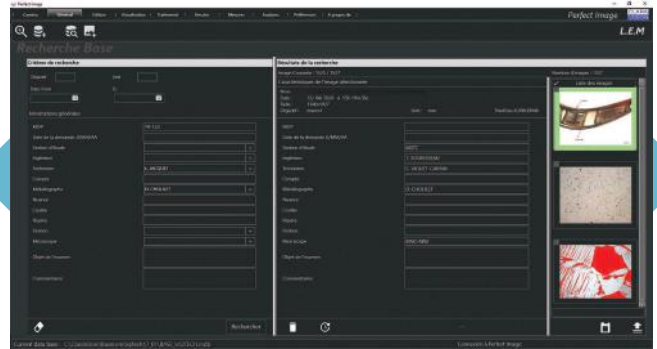
LEM image database

The Perfect Image software package functionality can be **extended using the LEM module (image database)**. Images are stored using keywords specified by the operator. **The databases can be entirely customised** (number of keywords, type of keywords, mandatory keywords, etc...) and can be created locally or on the organisation's server.

Indexing images with keywords makes it much easier to carry out searches than in a normal image library. **Searches by date, by user, by keywords, using multiple criteria, etc...**

Browsing the image database: LEM STA

The **LEM STA module enables access to the LEM image database over the organisation's network**. Users can view, sort and extract the images.



ASTM E 562MODULE

Perfect Image's **ASTM E 562 module enables phase quantification using the technique known as the "Standard Test Method for Determining Volume Fraction by Systematic Manual Point Count"**.

A mask made up of a (customisable) number of known points is displayed over the image, and adaptive thresholding then enables identification of the points belonging to the phase.

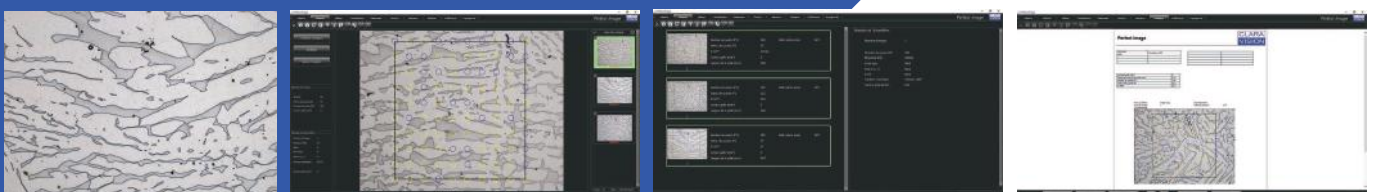
Inspection process

1. ACQUISITION

2. ANALYSIS

3. RESULTS

4. REPORT AND STATISTICS





ADD-ONS

Grani: Grain size Module

Perfect Image's **Grani module** is used specifically to **measure grain size in the metallurgy industry**. The module complies with ASTM E 112 and ISO 643 norms.

Simple and user-friendly, for rapid, precise measurement of your samples using three methods: **Image comparison, Intercepts and Planimetry**.

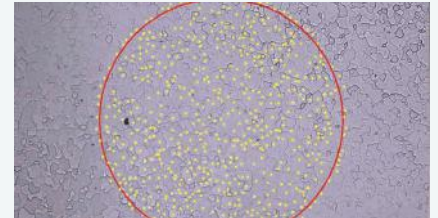
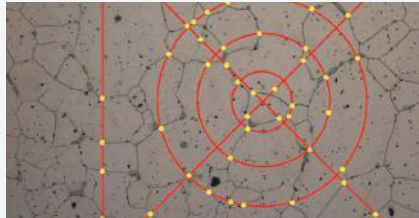
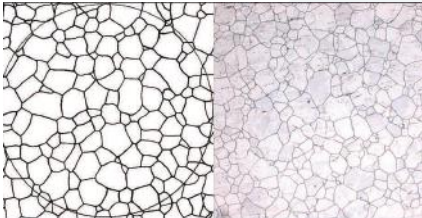


Image comparison

Comparison with reference images enables rapid estimates of the grain size index on both live and captured images.

Intercept method

The intercept method enables reliable, replicable measurements using 5 adjustable overlays whose size and position can be adjusted. The grain boundaries are detected automatically, and manual corrections are possible.

Planimetry

The planimetric method is the method of reference for complex samples and for dispelling doubt over differences of interpretation using the comparative method. The grains are counted comprehensively so as to obtain a reliable, replicable result.

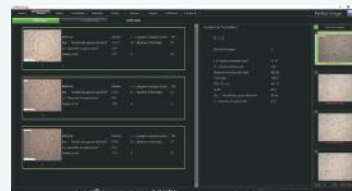
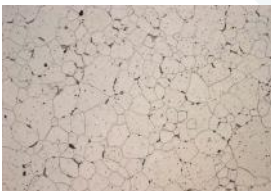
Inspection process

1. ACQUISITION

2. ANALYSIS

3. RESULTS

4. REPORT AND STATISTICS



Cast Imager: Cast Iron Analysis Module

Perfect Image's **Cast Imager module** is specifically used for **characterising cast iron in a production environment**. The module meets ASTM A 247, ASTM E 2567, ISO 945 and ISO 16112 norms.

Nodule characterisation / nodularity

Graphite nodules are automatically detected and analysed according to their size and shape. Artefacts can be eliminated automatically and manually.

Ferrite / Pearlite percentage

Ferrite and pearlite percentages are calculated by taking into account the graphite occupation rate. This can be entered manually, or result from the preliminary sample analysis.

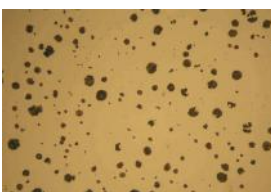
Inspection process

1. ACQUISITION

2. ANALYSIS

3. RESULTS

4. REPORT AND STATISTICS





TECHNICAL SPECIFICATIONS for Perfect Image software

	Perfect Image ACQ	Perfect Image LITE	Perfect Image	Perfect Image GOLD
Image acquisition				
Camera control and storage of camera settings/Twain Interface	■	■	■	■
Magnification calibration	■	■	■	■
HDR (High dynamic range) functionality	■	■	■	■
ROI management	■	■	■	■
Annotations				
Automatic/manual scale bar merging	■	■	■	■
Annotations on live/captured images	■	■	■	■
Annotation overlay management (storage/recall)	■	■	■	■
Display				
Image scaling	-	■	■	■
Image comparison with reference images	-	■	■	■
Image storage				
Automatic/manual image storage	■	■	■	■
LEM image database	□	□	□	□
LEM STA image database consultation	□	□	□	□
Image processing				
Filters (smoothing, edges)/Contrast/light adjustment/ Image rotation	■	■	■	■
Shading adjustment	-	□	■	■
Reconstruction of stacked images: Multifocus	-	□	■	■
Reconstruction of panoramic images: Metaview	-	□	■	■
Dimensional measurements				
Simple measurements on live/captured images	-	■	■	■
Measurement overlay management (storage/recall)	-	■	■	■
Customisable measurement tables (tolerances, formulas, etc...)	-	□	■	■
Other measurements				
Phase analysis	-	□	■	■
Layer thickness	-	□	■	■
Add-on modules				
ASTM E 562	-	□	□	□
Grani: Grain size measurement	-	□	□	□
Cast Imager: Cast iron analysis	-	□	□	□
Gold: Automated measurements	-	□	□	■
Reports				
Creation of reports in Word/Excel	■	■	■	■
Creation of Pdf reports	-	■	■	■
Licence types				
Physical licence (USB dongle)	■	■	■	■
Machine licence (machine-specific software key)	□	□	□	□
Floating network licence (physical licence on server or machine licence on server)	□	□	□	□

Required PC Configuration *

Processor	Intel Core I3*, I5, I7
Minimum RAM memory	8 Go
Operating systems	Windows 10 (64 bits) , Windows 8.1 (64 bits)
.Net Framework	Version 4.6.1 or later
Graphics card	Resolution 1920*1080
Office	Office 365 / Office 2019

* Please contact us

Available languages:

French, English, German, Italian, Spanish.

- Standard
- Option
- Not available



OUR OTHER SOLUTIONS

Clara Vision provides many **imaging solutions** – this is a small sample.
Clara Vision's solutions are adaptable, please get in touch for a bespoke solution!



**StructureExpert Weld /
Dimensional weld analysis**



Metallurgical microscopes



Stereomicroscopes



Digitisation bench/ Macrophotography



**Stage micrometers for microscopes/
Microscope eye piece reticles**



Microscope maintenance



Macro/micro photography workstation



Digital microscopes



Particle pollution analysis



Crimp cross-section analysis



**TroublePad :
High speed camera for production lines**



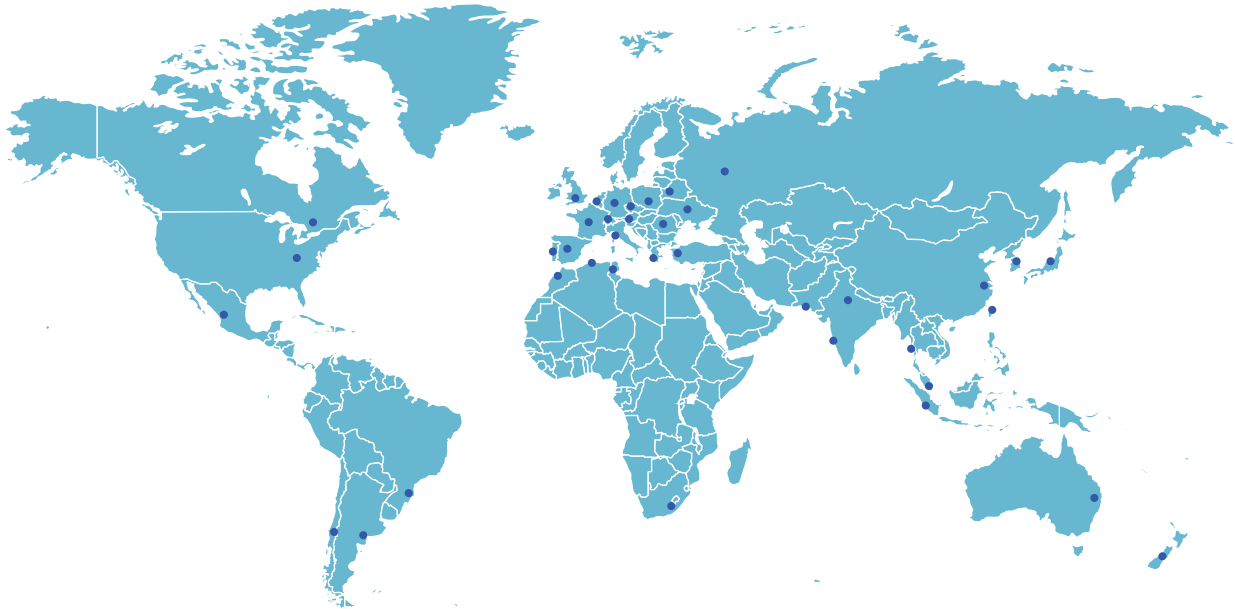
**High speed cameras:
For science and engineering**





DISTRIBUTION NETWORK

Clara Vision's solutions are sold worldwide through a network of specialised distributors.
Please contact us to locate your nearest distributor.



JUST SOME OF OUR REFERENCES

The biggest names in industry place their trust in **Clara Vision solutions**



+ 33 1 69 86 01 30



info@claravision.com



ZA des Godets la Noisette - BP 441
91370 Verrières le Buisson, France

www.claravision.com