



# VideoTest-Metal

## Metal structure analysis

**VideoTest-Metal** system is designed for automation of the metal structure analysis. The complete work station includes:

- reflected light microscope,
- black and white digital camera of high resolution,
- computer and printer,
- software for automatic image analysis of the metal samples, image and data archiving in the image database. VideoTest-Metal software includes methodics for metal structure analysis according to GOST, ISO, and ASTM requirements.

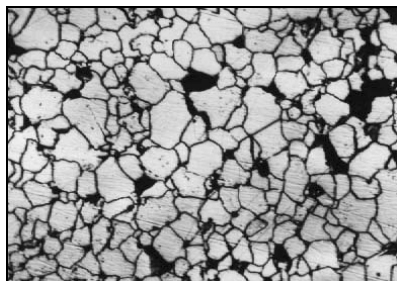


### Main abilities of **VideoTest-Metal**:

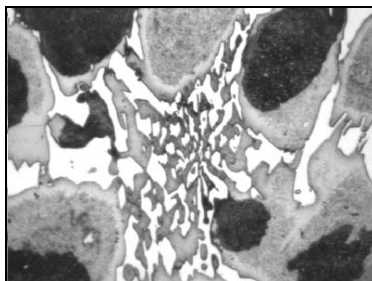
- Image acquisition with digital imaging system, image open from file, paste from the clipboard,
- Ability to work in the following automatic metal image analysis methodics created in accordance with стандартов GOST, ISO, and ASTM requirements.
  - Average Grain Size and Largest grain size analysis in accordance with ASTM E 1382 – 97, E 930 – 92, ISO 643, and GOST 5639 – 82 (Russian standard),
  - Phase analysis,
  - Inclusion or Second-Phase Constituent Content of Metals (according to ASTM E 1245-95 and GOST1778-70),
  - Evaluating the Microstructure of Graphite in Iron Castings (according to ASTM A 247-67 and GOST 3443-87),
  - Depth of Decarburization of Steel Specimens (according to ASTM 1077-91, GOST 1763-68, and ISO 3887-77),
  - Measure layers and covers.
- Estimate metal structure by the method of comparison with the standard (etalon) structures,
- Save images and data in VideoTest-Album image database,
- Report generation and print out images and data.

### Additional abilities:

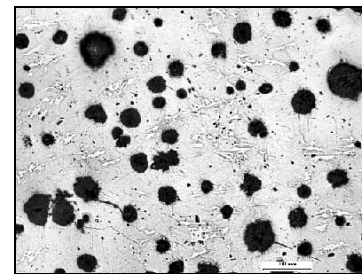
- Image enhancement with filters (brightness, contrast, sharpness),
- Image annotation (graphics and text),
- Manual and semi-automatic measurements, data display in the spreadsheets.



Steel grain sizing analysis



Phase analysis



Graphite inclusions



P.O. Box 356, St.-Petersburg, 190000 **RUSSIA**  
Phone: +7(812) 314-8100, 314-8445  
Fax +7(812) 325-6494  
e-mail: [info@videotest.ru](mailto:info@videotest.ru)  
<http://www.videotest.ru>

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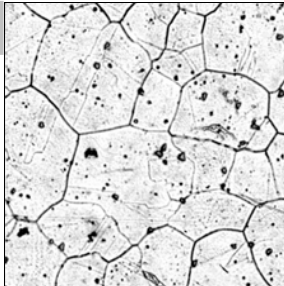
VideoTest-Metal image analysis software is designed for the control of microstructure of metals and alloys according to ASTM, DIN and ISO standards

VideoTest-Metal software includes several standard analysis methods and a possibility to work in a manual mode. Analysis results are sent to built-in database for storage and quick search and can be printed out using customizable templates.

## METHODS

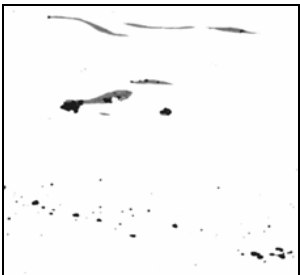
### Grain Size

Steel grain size – ASTM 1382, ASTM E 930, ASTM E122, ISO 634, DIN EN ISO 643-2003  
Prior austenitic grain size – ASTM E 112, ASTM E 1382  
Non-ferrous metals and alloys grain size



### Nonmetallic Inclusions

Determination of inclusions type – oxides, sulphides, silicates, oxides + sulphides + silicates  
Estimation of the inclusions - ASTM E 1245, ASTM E 45, E 1122, ISO 4967, DIN 50602  
Stitches of inclusions



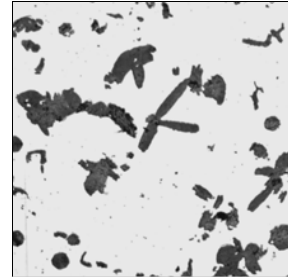
### Percentage of Microstructural Constituents

Relative contents of ferrite and pearlite  
Ferrite content in austenitic steel  
Carbides in tool steel  
Length of martensitic laths and needles



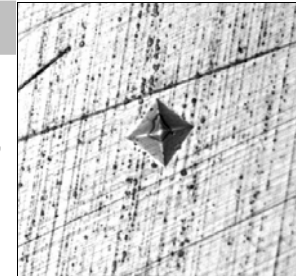
### Graphite Inclusions in Cast Iron

Automatic determination of the type, form and size of graphite inclusions – ASTM A 247



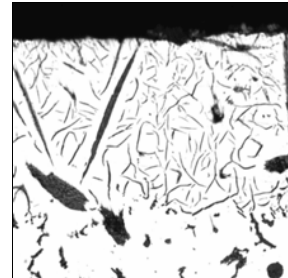
### Hardness

Vickers and Knoop hardness methods – ASTM E 384, E 92



### Depth of Layers

Decarburized layer depth - ISO 3887  
Determination of the depth of any modified layers and coatings



### Free Mode

Linear measurements  
Measurements of objects of complex shapes  
Image annotation

