Leica Steel Expert 2.0
Software for modern automated non-metallic inclusion rating
Competitive Advantage: Quality Control

Quality is essential. The quality of steel is heavily dependent on purity, which is defined by several factors, including the amount of non-metallic inclusions. Inclusions can develop while alloying and manufacturing the steel, and affect the steel's forming, fatigue strength, and corrosion resistance.

THE STEEL MARKET

With global annual production at over 1.5 billion tons, steel is the most manufactured and processed material in the world. Competition in the steel market is fierce, which results in quality control playing an increasingly important role.

REPRODUCIBLE ANALYSIS WITH LEICA STEEL EXPERT 2.0

In the past, visual comparison charts were used to characterize non-metallic inclusions. This was an inaccurate, time-consuming, and expensive method and results were difficult to reproduce. Today, automated microscopic analyses of the inclusion content is used to determine the purity of steel.

Leica Steel Expert 2.0 software works in combination with a Leica microscope and camera to automatically determine the purity of steel alloys with exact, fast, and reproducible results.

In addition to traditional types of non-metallic inclusions, sulfides, silicates, aluminates, and globular oxides, Leica Steel Expert 2.0 also classifies nitride or carbonitride inclusions, which can emerge from recycling and modern alloying elements such as titanium.

These classifications are based on the respective criteria of existing international standards for non-metallic inclusion rating.

Using the automated image analysis functions of Leica Steel Expert 2.0, both single and multiple samples can be analyzed regardless of your Leica microscope model and degree of automation. Leica Steel Expert 2.0 also enables simultaneous comparison of results in accordance with various existing industry standards – including ASTM E45 A, D, and E, ISO 4967 A and B, DIN 50 602 (K and M methods), EN 10 247, as well as JIS G0555, GB/T 10 561 (in progress).
Getting Results Effortlessly

› Clearly arranged design
› User-friendly handling
› Fast training
› Guided analysis

Leica Steel Expert 2.0 features simple menu-guided controls and a clearly structured user interface. Users are guided by the intuitive, easy-to-learn workflow, which allows you to start operating the software after a brief orientation period. The input screens are designed for efficiency so that you can quickly access analysis parameter definitions and results that can be reproduced at any time. Threshold values for detecting the various inclusions can be easily defined with elements such as the pipette tool.

SEVERAL REPORTS PER WORK STEP

Leica Steel Expert 2.0 allows you to create reports in almost no time at all. These reports meet all implemented international industry regulations and standards – all generated in a single work step.
Efficient Work

› Multiple samples
› Batch processing
› Simultaneous analyses
› Time savings

TIME SAVINGS DUE TO BATCH PROCESSING

Working with high-precision motorized or scanning stages enables automatic scanning of large sample areas. This also includes a full recording of very large inclusions. Analysis of at least six or more samples, the number required for many international standards, can be carried out in a single run.

Even on completely manual systems, Leica Steel Expert 2.0 offers a one-of-a-kind speed advantage: Large sample areas are evaluated in accordance with all common international standards in no time at all by performing simultaneous analysis of individual images via batch processing.
Always an Accurate Result

› Reliable
› Precise
› Pixel perfect accuracy
› Reproducible

The accurate detection of existing inclusions is a prerequisite for a standard-compliant assessment in modern steel purity analysis. The fully automated image analysis of Leica Steel Expert 2.0 enables the highest precision and reproducibility of measurement results. You are always in control with analysis results displayed on the screen with pixel accuracy and easy validation with the click of a mouse.
Documentation Made Easy

› Reports are one click away
› Templates based on user specifications
› Compatible with MS Office and OpenOffice

Leica Steel Expert 2.0 enables seamless documentation of results – whether it be an interim result or a final report. The one-click report function makes it possible to document your analysis quickly and easily. You can also create user-specific report templates that include company logos, for example.

You can also document all interim results simply by transferring them into your preferred office suite. Leica Steel Expert 2.0 is compatible with Microsoft Office and free office suites like OpenOffice.
Software Made to Order

Leica Steel Expert 2.0 is tailored to your requirements – whether you work with a manual or automatic microscope system. Do you need global reporting standards? Or just regional? Leica Steel Expert 2.0 provides individual software modules, so that you can choose a solution to precisely meet your requirements. Three modules with various standards are available:

**CENTRAL EUROPEAN**
Contains the DIN 50 602 and EN 10 247 standards, including the amendments to the rules and regulations from 2013.

**INTERNATIONAL**
Contains the ASTM E45 and ISO 4967 standards.

**SELECTED REGIONAL (IN PROGRESS)**
Contains the JIS G 0555 and GB/T 10 561 standards.
The productive cooperative effort "with the user, for the user" has always been the basis for the innovative strength of Leica Microsystems. On this, we have developed our five corporate values: pioneering, high-end quality, team spirit, dedication to science, and continuous improvement. We call making these values reality “Living up to Life.”

Leica Microsystems operates globally in three divisions, each of which ranks among the market leaders in its field.

**LIFE SCIENCE DIVISION**

Leica Microsystems’ Life Science Division supports the imaging needs of the scientific community with advanced innovation and technical expertise for the visualization, measurement, and analysis of microstructures. Our strong focus on understanding research applications puts Leica Microsystems' customers at the leading edge of science.

**INDUSTRY DIVISION**

The Leica Microsystems Industry Division’s focus is to support customers’ pursuit of the highest quality end result by providing the best and most innovative imaging systems for their needs to see, measure, and analyze microstructures. Its solutions are used in routine and research industrial applications, in materials science and quality control, in forensic science investigations, and educational applications.

**MEDICAL DIVISION**

The Leica Microsystems Medical Division’s focus is to partner with and support microsurgeons and their care of patients with the highest-quality, most innovative surgical microscope technology today and into the future.

Leica Microsystems – an international company with an experienced customer service network worldwide.

<table>
<thead>
<tr>
<th>Active worldwide</th>
<th>Tel.</th>
<th>Fax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia · North Ryde</td>
<td>+61 2 8870 3500</td>
<td>2 8878 1055</td>
</tr>
<tr>
<td>Austria · Vienna</td>
<td>+43 1 4868 05 00</td>
<td>1 4868 05 30</td>
</tr>
<tr>
<td>Belgium · Diegem</td>
<td>+32 2 790 98 50</td>
<td>2 790 98 68</td>
</tr>
<tr>
<td>Canada · Concord/Ontario</td>
<td>+1 800 248 0123</td>
<td>847 405 0164</td>
</tr>
<tr>
<td>Denmark · Ballerup</td>
<td>+45 4454 0101</td>
<td>4454 0111</td>
</tr>
<tr>
<td>France · Nanterre Cedex</td>
<td>+33 811 000 666</td>
<td>1 56 05 23 23</td>
</tr>
<tr>
<td>Germany · Wetzlar</td>
<td>+49 64 29 40 00</td>
<td>64 29 41 55</td>
</tr>
<tr>
<td>India · Calcutta</td>
<td>+91 33 66 12 36</td>
<td>33 66 12 36</td>
</tr>
<tr>
<td>Italy · Milan</td>
<td>+39 02 3574 66</td>
<td>02 3574 3392</td>
</tr>
<tr>
<td>Japan · Tokyo</td>
<td>+81 3 5421 2000</td>
<td>3 5421 2896</td>
</tr>
<tr>
<td>Korea · Seoul</td>
<td>+82 2 514 65 43</td>
<td>2 514 65 48</td>
</tr>
<tr>
<td>Netherlands · Rijswijk</td>
<td>+31 70 4132 100</td>
<td>70 4132 109</td>
</tr>
<tr>
<td>People’s Rep. of China · Hong Kong</td>
<td>+852 2584 8699</td>
<td>2584 4163</td>
</tr>
<tr>
<td>People’s Rep. of China · Shanghai</td>
<td>+86 21 6387 6606</td>
<td>21 6387 6698</td>
</tr>
<tr>
<td>Portugal · Lisbon</td>
<td>+351 21 388 9112</td>
<td>21 385 4688</td>
</tr>
<tr>
<td>Singapore</td>
<td>+65 6779 7823</td>
<td>6773 0628</td>
</tr>
<tr>
<td>Spain · Barcelona</td>
<td>+34 93 494 95 30</td>
<td>93 494 95 32</td>
</tr>
<tr>
<td>Sweden · Kista</td>
<td>+46 8 625 45 45</td>
<td>8 625 45 10</td>
</tr>
<tr>
<td>Switzerland · Heerbrugg</td>
<td>+41 71 726 34 34</td>
<td>71 726 34 44</td>
</tr>
<tr>
<td>United Kingdom · Milton Keynes</td>
<td>+44 800 298 2344</td>
<td>1908 246312</td>
</tr>
<tr>
<td>USA · Buffalo Grove/Illinois</td>
<td>+1 800 248 0123</td>
<td>847 405 0164</td>
</tr>
</tbody>
</table>

Copyright © by Leica Microsystems CMS GmbH, Wetzlar, Germany, 2013.
Subject to change.
LEICA and the Leica Logo are registered trademarks of Leica Microsystems IR GmbH.