1. **Smart Grid Tool**
Align all facets symmetrically in a snapshot! Get a quick visual tool to reveal any deviation in facets positioning and alignment. The Smart grid is fully symmetrical. Drag and drop any line, and the twin line moves simultaneously keeping the grid perfectly symmetrical. The new grid is adjustable and customizable, and can be printed as well. Watch more on the grid on [Sarine’s YouTube channel](https://www.youtube.com).

![Smart Grid Tool](image)

2. **Virtual Polish**
‘Virtual Polish’ (VP) is a rich 3D experience to recut the stone. Change angles, azimuth, heights and depth of any facet, of any shape. Virtual Polish enrich the recut toolbox and can be used together with ‘Auto-recut’. For example, user can start with VP to remove some surface defects in the diamond and then continue to Auto-recut to find the optimal solution. [More on Youtube Channel](https://www.youtube.com).

![Virtual Polish](image)

3. **Fancy Reports (‘Brother Facets’)**
Create detailed Fancy reports! Group facets by their symmetrical position on the stone (rather than by belt, see below). Group and compare the right facets and extract the AVG, MIN, MAX and DEV of the “family”. Supports all shapes and a great tool to create powerful Fancy reports. [See image to the right, facets are grouped by position (colors)](image).

<table>
<thead>
<tr>
<th>Angle</th>
<th>Facet</th>
<th>AVG</th>
<th>MIN</th>
<th>MAX</th>
<th>DEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crown</td>
<td>Head</td>
<td>29.2</td>
<td>29.1</td>
<td>29.3</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Wing</td>
<td>32.3</td>
<td>32.1</td>
<td>32.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Curve</td>
<td>Head</td>
<td>35.9</td>
<td>35.7</td>
<td>36.1</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>Wing</td>
<td>38.9</td>
<td>38.7</td>
<td>39.2</td>
<td>0.4</td>
</tr>
<tr>
<td>Sea</td>
<td>Head</td>
<td>34.4</td>
<td>34.3</td>
<td>34.6</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>Wing</td>
<td>37.1</td>
<td>37.0</td>
<td>37.3</td>
<td>0.3</td>
</tr>
</tbody>
</table>

[Figure 1 - Group facet based on the stone's symmetry](image)
4. Grading System Editor

The New Grading system editor, allows you full control to customize and create your own Grading system. You can now define new grading rules and boundaries to your diamonds parameters, for any shape and facet style. Fully backwards compatible to support old user-grading systems.

(Grading-Editor is located under the Settings menu.)

5. Quick Action (‘Lookup table’)

Work Faster! With new Automation features to customize various Prints and Exports actions for different shapes, cut-stages and outputs actions. All in 1 click. For example, if the stone is in 8-Cut stage, click on Print button will automatically print the appropriate report for Round in 8-cut stage, if Princess was measured, then same button will now print the predefined report of Princess Shape, etc. Applicable to all shapes and cut-stages for Print Reports, Labels, and Exports. Can be used both in Automation sequences & output bar buttons.

1 Click will Print the right report for any shape!

Associate for each shape the relevant action that goes with it.

6. Emerald Improved Modeling

Following Pear, Marquise, Oval, Princess and Cushion shape improvements in past releases, Instructor™3.5 introduces revised algorithms to model Emerald shapes with improved accuracies. No need to upgrade the hardware - this new modeling technic extracts more from the same ‘shadows’ inputs. Applicable to all Sarine diamond scanners hardware (DiaScan™, DiaMension™, HD™).

7. Hearts & Arrows 2.0

New and improved Hearts & Arrows simulator. New RayTracer2.0 engine that calculates more accurately and faithful to the real diamond, how light interacts with the stone and predicts superior Hearts and Arrows patterns. Additional new settings to customize and control the background color and the output can be saved as one image. (*Note: H&A requires NVidia® graphic card with CUDA®. See more on Tech notes.)
8. Four New Symmetry Parameters

Four new symmetry parameters are now applicable with Instructor™ 3.5:

1. **Misalignment**, measures the angular and mm deviation between matching positions of crown and pavilion’s meeting points to girdle.
2. **Table Edges**, measure each table side mm length and can calculate the non-octagonal table symmetry parameter.
3. The **Maximum Inscribed circle** finds the optimal inscribed circle, and
4. Last the **Number of girdle features** counts the number of extra facets or naturals in the stone.

9. Improved Measurements for Very Small Stones

A new and improved algorithms for modelling very small stones. Down to the lower end of measurable diamonds (lens #4) of 1.0mm diameter, or 0.01 carat stones, this improved technic now measures and models more accurately.

10. Recut Symmetry Control

Instructor™ 3.5 includes new and updated symmetry definitions for the Auto recut engine. The new updated symmetry defaults control the recut results, and provide a variety of recut options to choose from. The new definitions are set and aligned with the industry’s standard best practices as defined by the leading labs.

11. GSI® Lab Round & Princess 2015

The official Gemological Science International (GSI) cut grade is now integrated in Instructor™. The GSI cut system supports both ROUND and PRINCESS shapes. Updated with 2015 definitions and grading rules, get the estimated GSI® cut grade instantly with Instructor™ 3.5.
12. Basic / Standard / Professional / Station Editions

Instructor™ 3.5 now comes in four different editions. From the Basic ‘measure-print’ version to the rich toolbox of the Professional edition. For the first time a software only edition, also known as Station version, is available.

<table>
<thead>
<tr>
<th>Edition</th>
<th>Basic</th>
<th>Standard</th>
<th>Professional</th>
<th>Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>AXIOM</td>
<td>√</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Measure*</td>
<td>√</td>
<td>√</td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Grading</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Reports / Prints /Export</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>.STL Export</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>3D View</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>3D Tools</td>
<td>√</td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>H&amp;A</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Recut (simple, symmetric)</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
</tr>
<tr>
<td>Recut (full toolbox)</td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Light Performance***</td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
<tr>
<td>Mark**</td>
<td></td>
<td></td>
<td></td>
<td>√</td>
</tr>
</tbody>
</table>

* All scanners except the AXIOM. ** Marking is supported only on Instructor 2.6. *** will be in future versions.

13. AXIOM – Partial stone scan (in-process stones)

AXIOM can now scan partially finished stones. For example, a round stone where the Pavilion is completed while the crown is still in process. The stone will be fully scanned (shadows) with Microscopic analysis done only on the finished part of the stone. Any C*P8 or P8C* can now be analyzed down to the microscopic level with AXIOM’s superior accuracy.
14. Speed up with Keyboard F1...F12

Speed up with over 50 keyboard shortcuts and controls. Additionally, instructor 3.5 allocates the prime 12 Function buttons to the most important and commonly used actions, such as: Print, Save, and Rotate to 1st facet and more. The F1, F2, F3, F4, F5 keyboard buttons now trigger 5 customizable Automation sequences, letting you set up and speedup any automation process you choose.

### Automation & Output

#### Virtual Polish

**Virtual Polish (Keypad)**

- 8 Angle: Polish Inwards
- 2 Angle: Polish Inwards
- 4 Azimuth: Increase (clockwise)
- 6 Azimuth: Decrease (counterclockwise)
- 5 Depth: Inwards
- ATL + <key>: Combine with any keypad to move to opposite direction
- CTRL + <key>: Doubles the step of change

**3D View Control**

- A: Current only
- F: Wireframe
- D: Stone-in-stone
- S: Recut only
- 1: Speed-view 1
- 2: Speed-view 2
- 3: Speed-view 3
- Q: Top view
- W: Bottom view
- E: Side view down
- R: Side view up
- Space: 3D / Video

---

INSTRUCTOR™ 3.5  
DIAMOND STUDIO  
Sarin Technoloies Ltd., 7 Atir Yeda St., Kfar Saba 44643, Israel, Tel: +972-9-7903500, Fax: +972-9-7903501, www.sarine.com  
Page 5
15. Miscelleneus

Supporting documents (please see \Docs folder)
1. Instructor™ 3.5 Technical Notes
2. Instructor™ 3.5 Installation Guide
3. DiaMension™ AXIOM calibration technical guide

16. Index

1 SMART GRID TOOL ........................................................................................................................................... 1
2 VIRTUAL POLISH .............................................................................................................................................. 1
3 FANCY REPORTS ('BROTHER FACETS') ........................................................................................................ 1
4 GRADING SYSTEM EDITOR .............................................................................................................................. 2
5 QUICK ACTION ('LOOKUP TABLE') ................................................................................................................ 2
6 EMERALD IMPROVED MODELING ................................................................................................................ 2
7 HEARTS & ARROWS 2.0 ..................................................................................................................................... 2
8 FOUR NEW SYMMETRY PARAMETERS .......................................................................................................... 3
9 IMPROVED MEASUREMENTS FOR VERY SMALL STONES ........................................................................... 3
10 RECUT SYMMETRY CONTROL ....................................................................................................................... 3
11 GSI® LAB ROUND & PRINCESS 2015 ............................................................................................................. 3
12 BASIC / STANDARD / PROFESSIONAL / STATION EDITIONS ........................................................................ 4
13 AXIOM – PARTIAL STONE SCAN (IN-PROCESS STONES) ............................................................................. 4
14 SPEED UP WITH KEYBOARD F1...F12 ........................................................................................................... 5
15 MISCELLENEUS ............................................................................................................................................... 6
16 INDEX .............................................................................................................................................................. 6