SCB Test Data to Excel Exporter

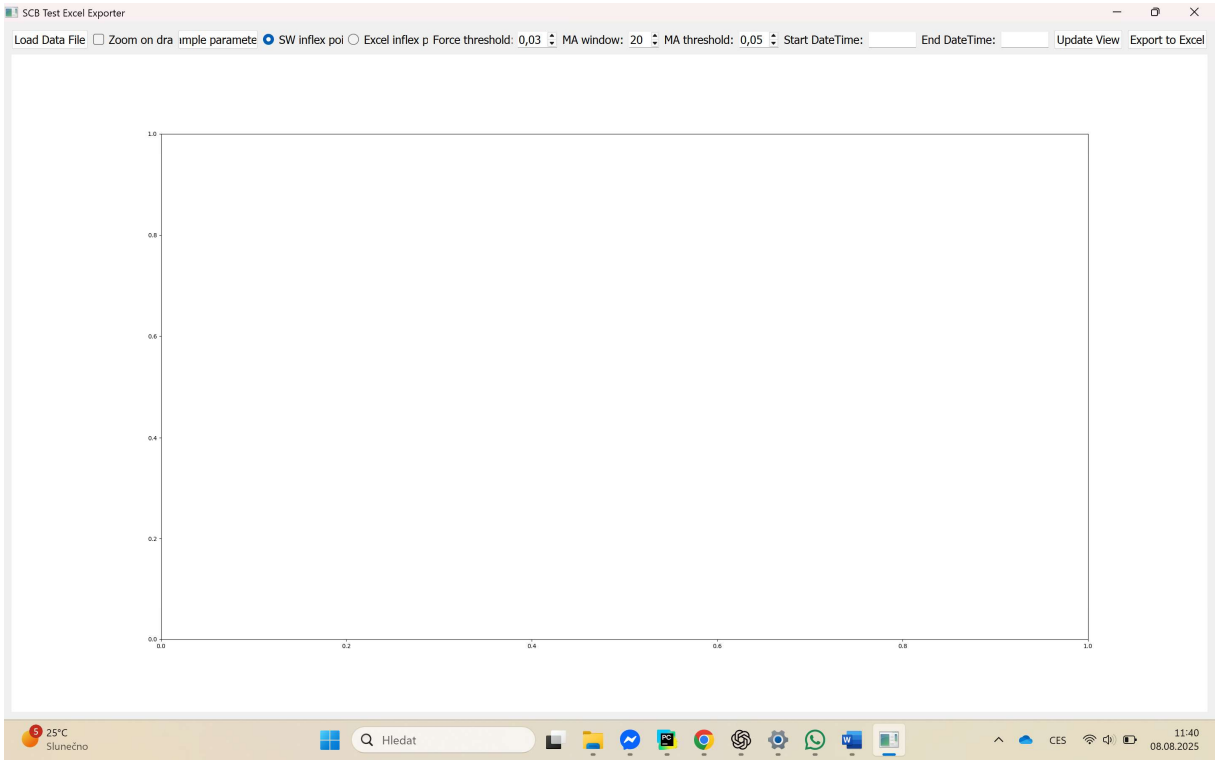
SCB Test Excel Exporter is a user-friendly GUI application built with **PyQt5** for interactive processing, segmentation, and exporting of SCB (Semi-Circular Bend) mechanical test data. The application allows users to detect test intervals, calculate polynomial fits, identify inflection points, and export the processed results into a preformatted Excel template.

🚀 Getting Started

1. Launching the Application

To run the application:

- Navigate to the folder where you saved the software.
- Open the dist folder.
- Run scb_exporter.exe.

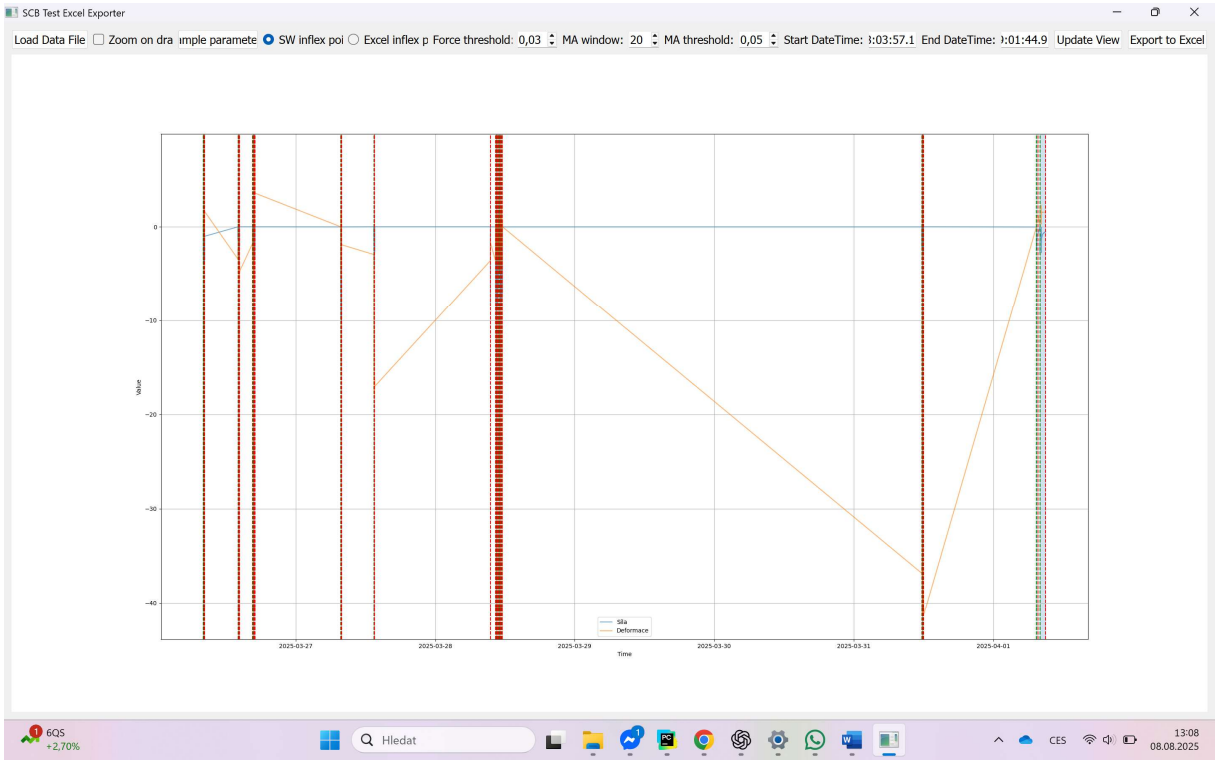


🖥️ Interface Overview

After launching the app, you'll see the main window with several control buttons.

🔹 Load Data File

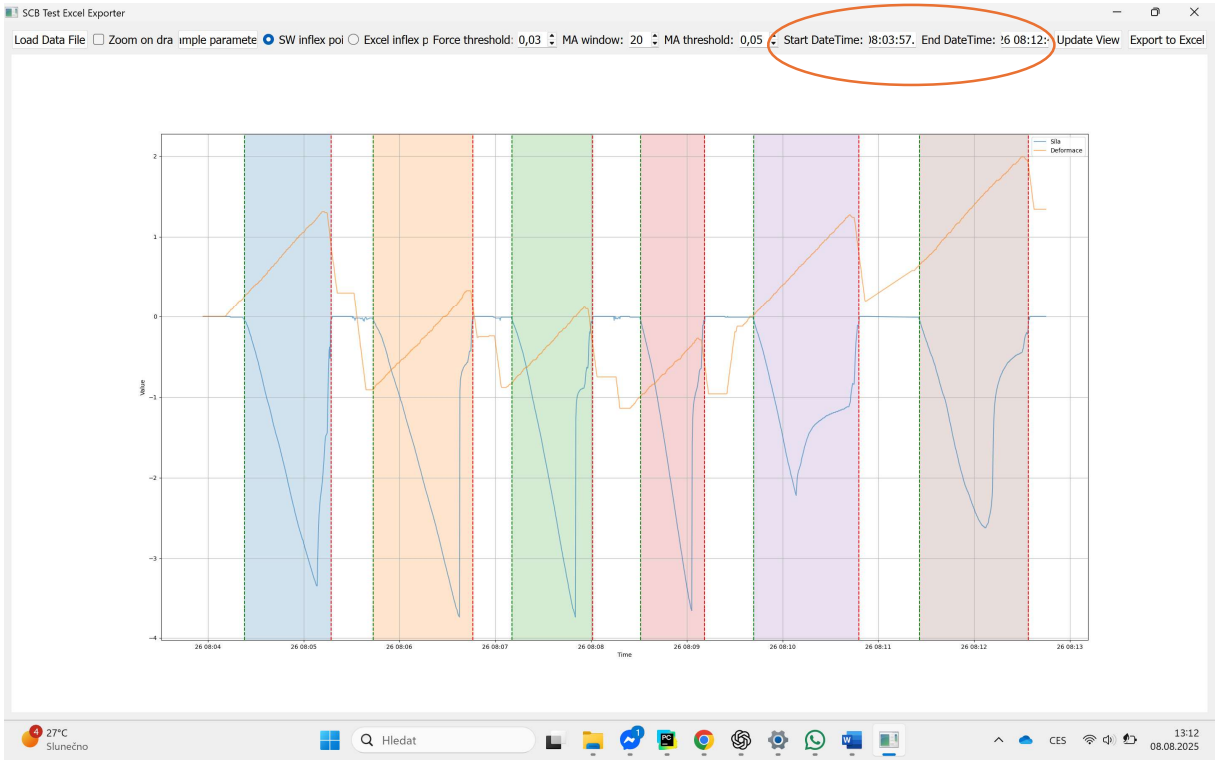
- Use this button to load your test data in **.txt format** (from ALMEMO).
- Once loaded, the entire dataset is displayed — typically containing multiple test intervals.



📊 Selecting and Viewing Intervals

To process a specific test:

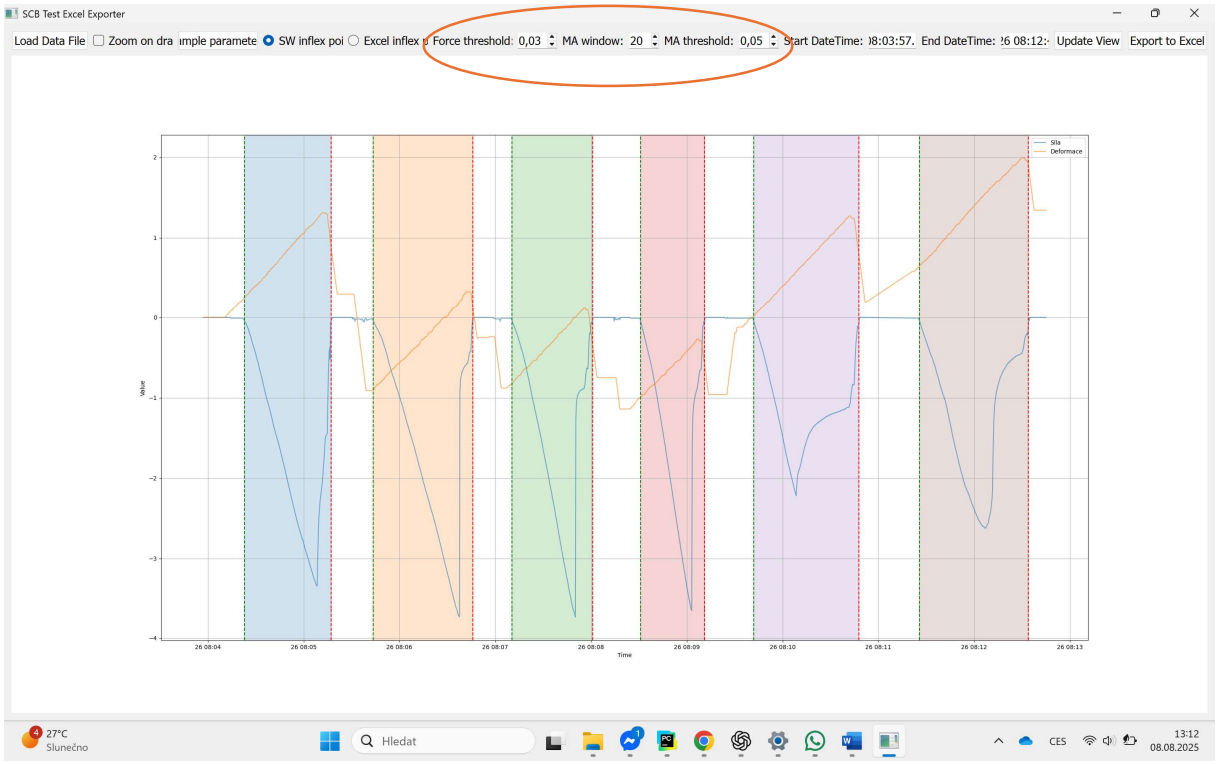
1. **Set the Start and End date/time** corresponding to the desired test.
2. Click **Update View** to refresh the graph.



You'll see a zoomed-in view of the selected intervals. You can further refine this view:

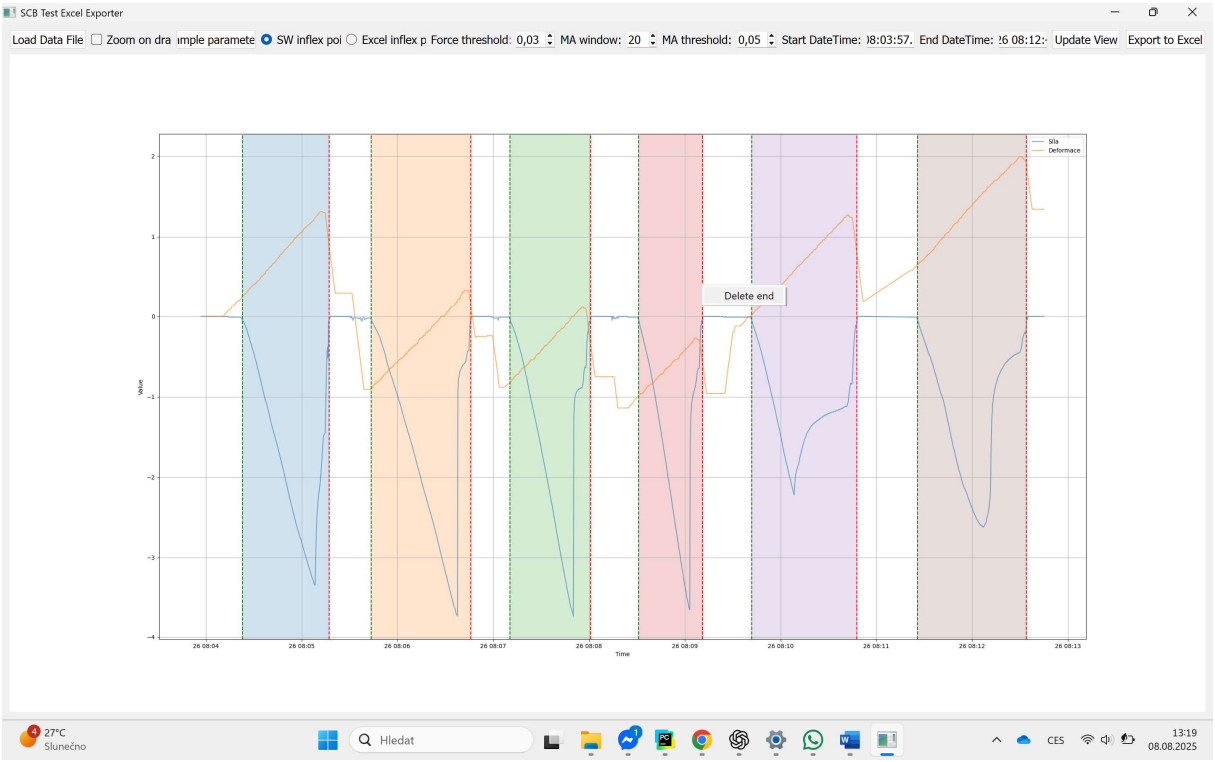
- Tune the detection parameters:
    - **Force Threshold**
    - **MA (Moving Average) Window**
    - **MA Threshold**
- **Drag interval boundaries** to adjust start and end.

These parameters influence how the software determines the beginning of each interval.



🔄 Interval Editing Tools

- **Right-click on an interval (red or green line)** to delete it if it was detected incorrectly.
- **Right-click on an empty area** to add a new interval by selecting a custom start or end point.
- **Drag the interval handles** to fine-tune boundaries. You can enable **Zoom on Drag** for more precise control.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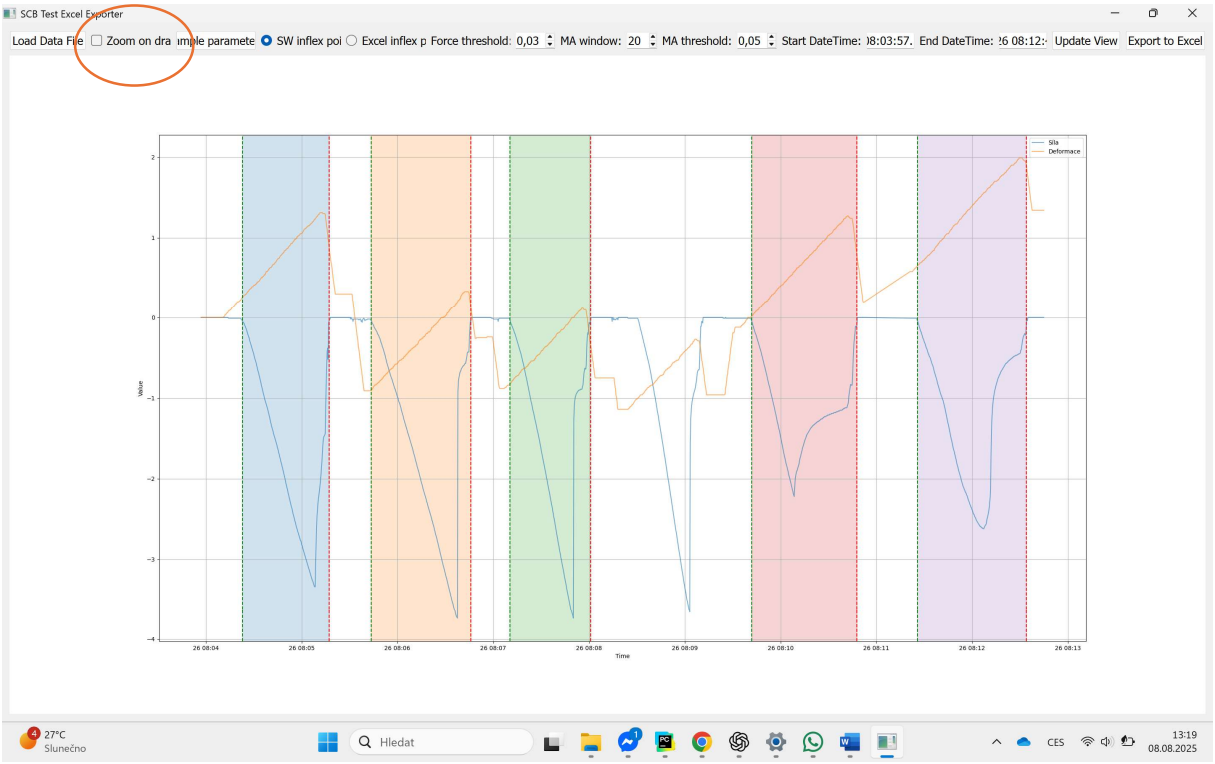
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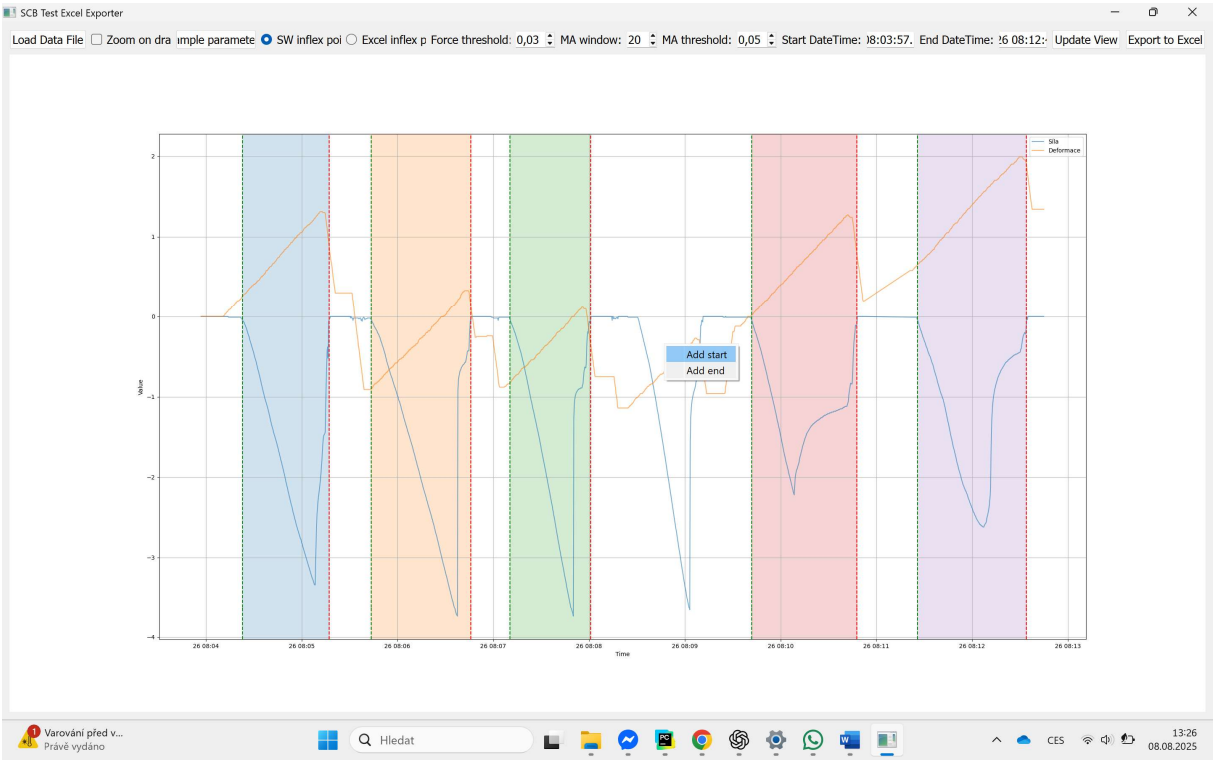


🔷 Inflection Point Detection

Before exporting, choose how to determine the **inflection point**:

- Use the **standard method** from the Excel template.
- Or use the **built-in calculation method** provided by this software.

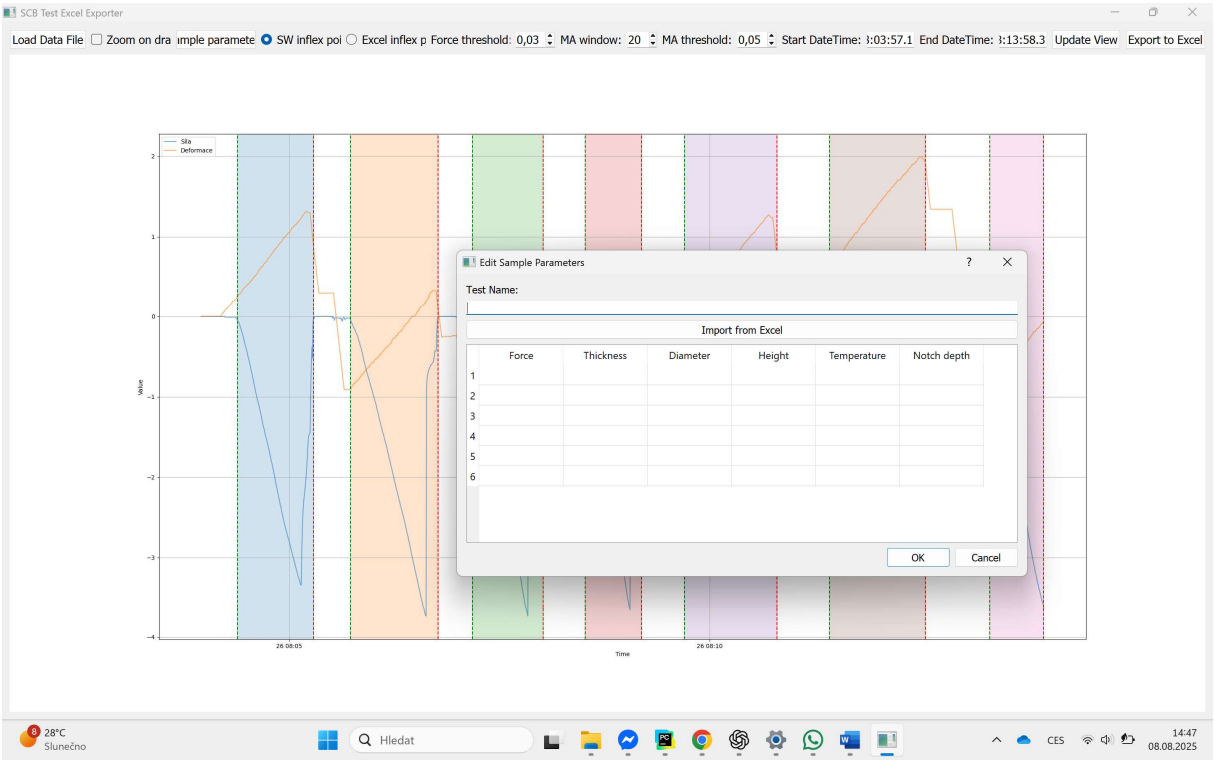
🧂 Sample Parameters (Optional)

You can add additional metadata by clicking **Sample Parameters**:

- Sample name
- Dimensions (width, thickness, radius)
- Temperature
- Notch depth

Alternatively, if you have sample data stored in an Excel file:

- Click **Import from Excel**.
- Select the file and sheet.
- Define:
    - **Starting row** (where the first sample is listed)
    - **Starting column** (e.g. 1 = A, 2 = B, etc.



📤 Exporting to Excel

Once all intervals are correctly set:

- Click **Export to Excel**.
- You can export **up to 6 samples** at once.
  If more intervals are present, the software will prompt you to reduce the number.
- Choose a file name for your Excel output — and you're done!
- Exported files are formatted automatically and ready for further analysis or presentation.