KEVIN Process Advisor by AmeriCOM: Operator Training Manual

KEVIN helps technicians make better polishing decisions by combining current part information, measured optical condition, process settings, and historical polishing results. This manual explains what to enter, why the information matters, and how KEVIN uses it to recommend the next polishing move.

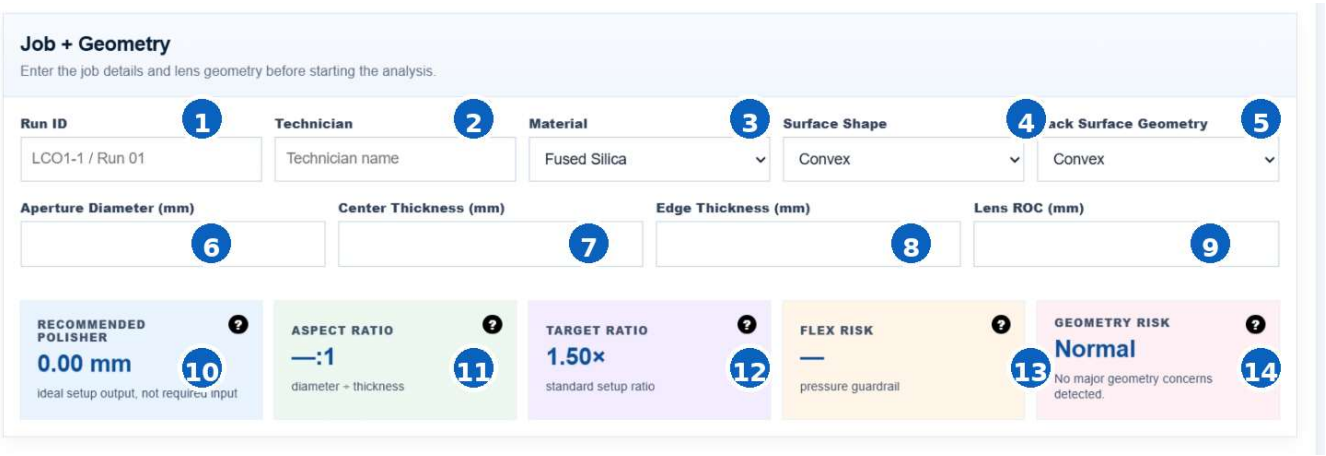
Overview: Recommended Workflow

- Enter part, geometry, pad, slurry, and machine setup information.
- Enter the current and target measurement values.
- Select the surface error pattern and run KEVIN.
- Review the recommendation, math, historical evidence, and risk warnings.
- Perform the polishing run and measure the optic again.
- Record the actual results and log the run to the repository.

Job + Geometry

What KEVIN is doing: KEVIN builds the starting model for the optic. It looks at material, surface shape, aperture, thickness, and ROC to understand the part before any polishing adjustment is recommended.

Why this information is needed: Geometry controls how aggressive a process can safely be. Thin or high-aspect-ratio parts are more sensitive to pressure and can flex, which can create misleading measurement changes or add form error.



Callout Guide:

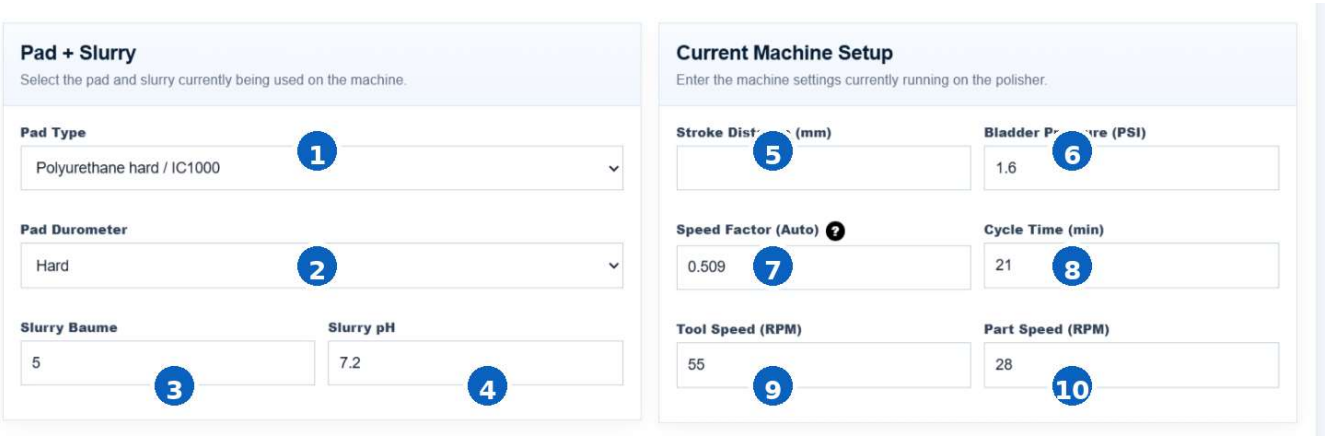
1. Run ID: unique name for this polishing run.
2. Technician: operator completing the run.
3. Material: optic material; KEVIN uses this to adjust expected polishing response.
4. Surface Shape: convex, concave, or plano surface being corrected.
5. Back Surface Geometry: geometry on the opposite side of the optic.

6. Aperture Diameter: clear aperture or working diameter.
7. Center Thickness: thickness through the center of the optic.
8. Edge Thickness: thickness at the optic edge.
9. Lens ROC: current or nominal radius of curvature.
10. Recommended Polisher: KEVIN's calculated tool-size guidance.
11. Aspect Ratio: diameter-to-thickness indicator used for flex risk.
12. Target Ratio: normal setup ratio KEVIN compares against.
13. Flex Risk: pressure guardrail based on geometry.
14. Geometry Risk: overall geometry warning status.

Pad, Slurry, and Current Machine Setup

What KEVIN is doing: KEVIN reads the current consumables and machine settings so it can recommend changes that fit the actual polishing setup.

Why this information is needed: Pad type, pad hardness, slurry chemistry, stroke, pressure, speed, and cycle time all affect removal behavior. If these values are wrong, the recommendation may be too aggressive or too conservative.



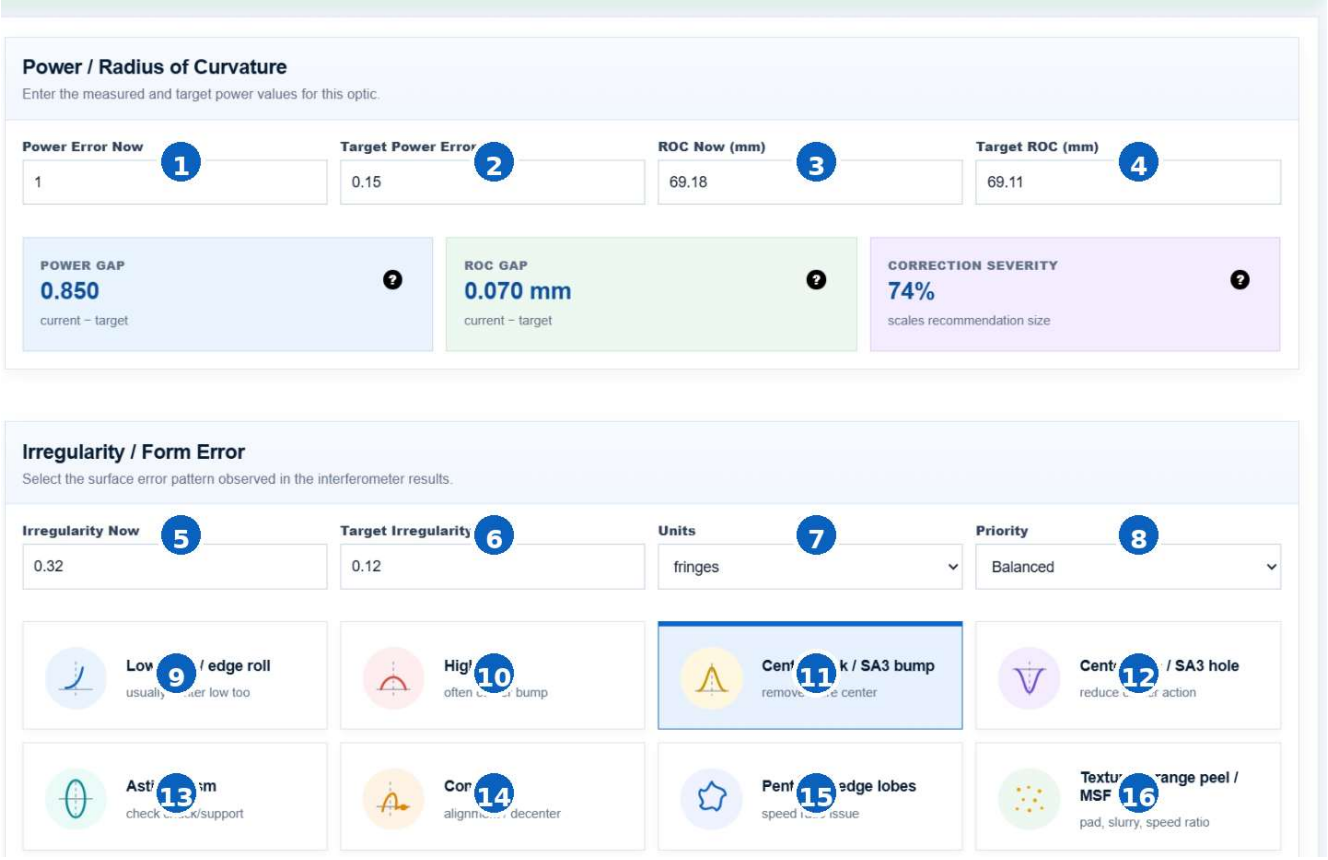
Callout Guide:

1. Pad Type: polishing pad currently on the machine.
2. Pad Durometer: pad hardness.
3. Slurry Baume: slurry concentration.
4. Slurry pH: slurry chemistry condition.
5. Stroke Distance: current stroke setting.
6. Bladder Pressure: current pressure setting.
7. Speed Factor: automatically calculated speed relationship.
8. Cycle Time: current run time.
9. Tool Speed: polisher/tool RPM.
10. Part Speed: optic/carrier RPM.

Measurement Entry

What KEVIN is doing: KEVIN compares the current optical condition to the target condition. The size and direction of these gaps drive the recommendation.

Why this information is needed: Accurate measurement entry tells KEVIN what needs to change. Power/ROC values drive radius correction. Irregularity and pattern selection tell KEVIN what form error is present.



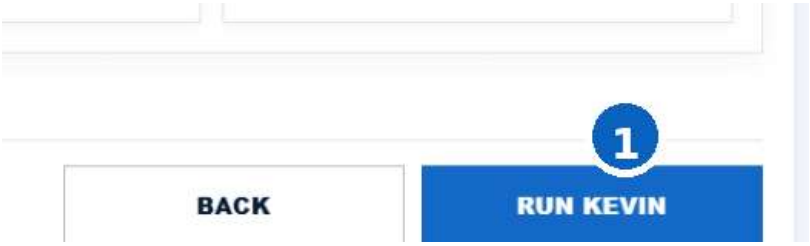
Callout Guide:

1. Power Error Now: current measured power error.
2. Target Power Error: desired power value.
3. ROC Now: current radius measurement.
4. Target ROC: required radius.
5. Irregularity Now: current form error.
6. Target Irregularity: required form tolerance.
7. Units: measurement units used for irregularity.
8. Priority: whether KEVIN should balance correction or favor power/ROC or irregularity.
9. 9-16. Pattern Selection: select the pattern that best matches the interferometer result.

Run KEVIN

What KEVIN is doing: When Run KEVIN is selected, KEVIN combines the part model, measurements, process settings, and historical evidence to create a recommended next move.

Why this information is needed: The recommendation is only as good as the data entered. Review the entries before running the analysis.



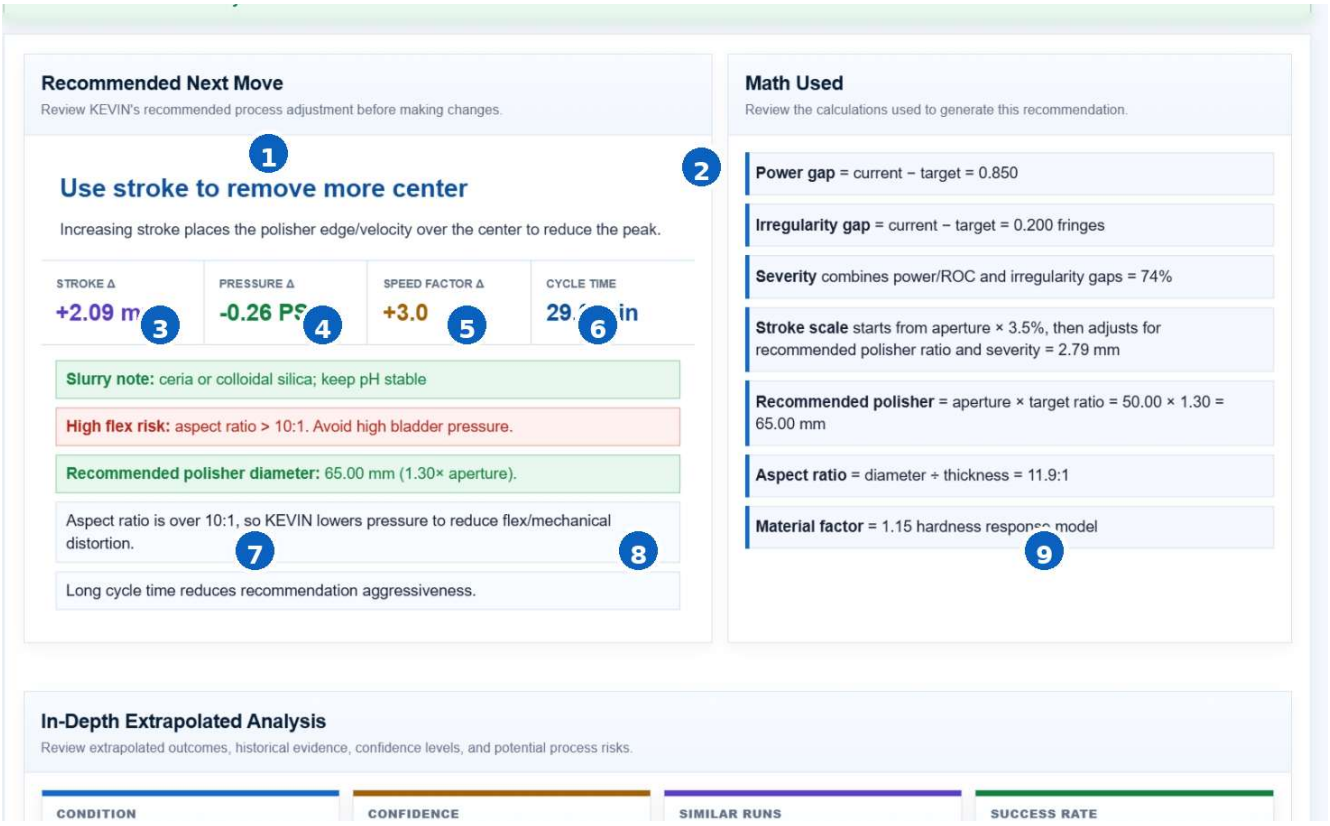
Callout Guide:

1. Run KEVIN: starts the recommendation engine.

Recommendation Review

What KEVIN is doing: KEVIN presents a recommended next move, the calculations used, similar historical runs, confidence level, and risk warnings.

Why this information is needed: This page helps the technician understand not just what KEVIN recommends, but why. The math and historical evidence support better decision-making before machine settings are changed.



Callout Guide:

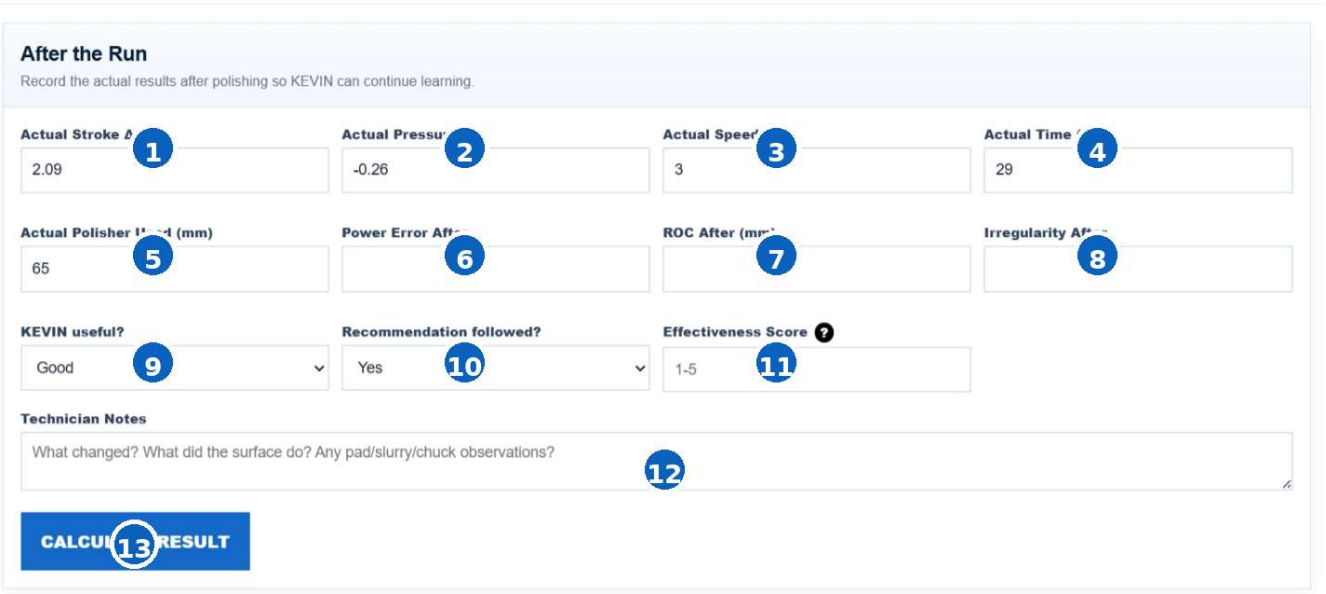
1. Recommended Next Move: primary process adjustment.
2. Math Used: calculations and rule logic behind the recommendation.
3. Stroke Change: recommended stroke adjustment.

4. Pressure Change: recommended pressure adjustment.
5. Speed Factor Change: recommended speed relationship change.
6. Cycle Time: recommended run time.
7. One Primary Change: simplified action guidance.
8. Historical Evidence: similar previous runs used for comparison.
9. Risk Warnings: conditions that require caution.

Recording Actual Results

What KEVIN is doing: KEVIN captures what actually happened after polishing. This closes the loop between recommendation and outcome.

Why this information is needed: Recorded results become historical evidence. Future recommendations improve when technicians log actual changes, final measurements, and observations.



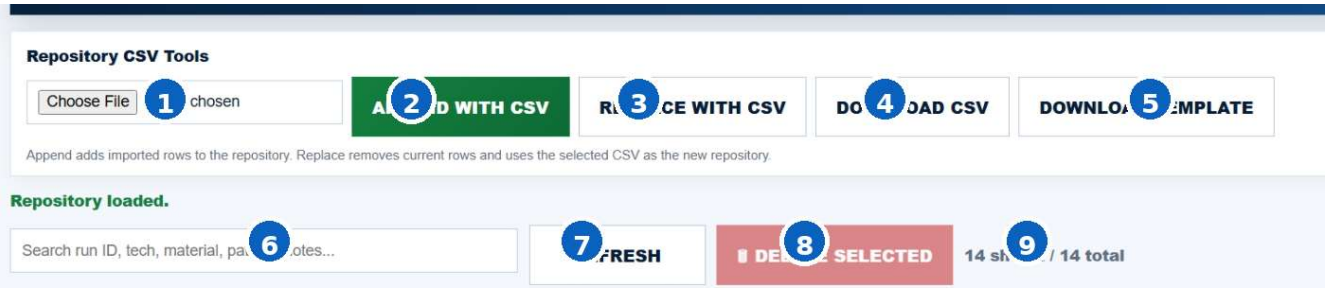
Callout Guide:

1. Actual Stroke Change: stroke adjustment used.
2. Actual Pressure Change: pressure adjustment used.
3. Actual Speed Change: speed adjustment used.
4. Actual Time: actual cycle time.
5. Actual Polisher Used: tool diameter used.
6. Power Error After: final power result.
7. ROC After: final radius result.
8. Irregularity After: final form result.
9. KEVIN Useful?: technician judgment of usefulness.
10. Recommendation Followed?: whether the recommendation was followed.
11. Effectiveness Score: 1-5 rating.
12. Technician Notes: observations, lessons learned, or concerns.
13. Calculate Result: generates the outcome summary.

Repository Controls

What KEVIN is doing: The repository stores the historical run database that powers KEVIN's learning and comparison features.

Why this information is needed: Repository tools allow the user to search, review, import, export, and maintain process knowledge over time.



Callout Guide:

1. Choose File: select a CSV file for import.
2. Append with CSV: add imported rows to the existing repository.
3. Replace with CSV: replace the repository with the selected file.
4. Download CSV: export current repository data.
5. Download Template: download a blank import template.
6. Search: filter runs by run ID, technician, material, pattern, or notes.
7. Refresh: reload repository records.
8. Delete Selected: remove checked entries.
9. Count Display: shows the number of visible and total records.

Repository Table

What KEVIN is doing: The repository table lets technicians review prior runs and compare current conditions to historical outcomes.

Why this information is needed: Historical review helps reduce trial-and-error by showing which settings worked for similar materials, shapes, patterns, and measurements.

☐	Edit	**Sarah test1** 6/18/2026, 11:53:58 AM	Ruth B. Ginspurr	fused_silica	cx	50	69.11	astigmatism	65.00	—
☐	Edit	**LCO1-1 / Demo Run** 6/18/2026, 11:54:01 AM	Britney Spears	fused_silica	cx	50	69.11	astigmatism	65.00	—
☐	Edit	**Sarah test 55** 6/18/2026, 1:54:02 PM	Dianne Keaton	fused_silica	cx	50	69.11	astigmatism	65.00	—
☐	Edit	**TESTING** 6/18/2026, 12:06:07 PM	Cardi B	germanium	plano	50	20	coma	75.00	—
☐	Edit	**LCO1-1 / Demo Run** 6/18/2026, 12:14:07 PM	Ruth B. Ginspurr	fused_silica	cx	50	69.11	astigmatism	65.00	3.00
☐	Edit	**new test** 6/18/2026, 12:16:22 PM	Elphaba	caf2	plano	50	39999	high_edge	75.00	—
☐	Edit	**pad Test** 6/18/2026, 12:40:08 PM	DJ Tanner	zerodur	plano	50	39999	low_edge	75.00	4.00
☐	Edit	**LCO1-1 / Demo Run** 6/18/2026, 4:27:39 PM	Ruth B. Ginspurr	silicon	cc	6	69.11	pentafoil	9.00	5.00
☐	Edit	**test** 6/22/2026, 12:05:40 PM	sarah	silicon	plano	2	30	astigmatism	3.00	3.00
☐	Edit	**test upload** test upload	test upload	test upload	test upl…	test upl…	test upload	test upload	—	—
☐	Edit	**Agentic Test** 6/30/2026, 1:32:52 PM	Sarah	zerodur	cx	4	5	high_edge	5.60	5.60
☐	Edit	**New TEST** 6/30/2026, 1:34:00 PM	Ruth B. Ginspurr	fused_silica	cx	50	69.11	low_edge	65.00	65.00

Callout Guide:

1. Select Checkbox: mark a row for deletion.
2. Edit: expand the row for editing.
3. Run: run identifier and timestamp.
4. Technician: operator who logged the run.
5. Material: optic material.
6. Surface: surface shape.
7. Diameter: aperture or working diameter.
8. ROC: radius of curvature.
9. Pattern: surface error pattern.
10. Recommended Polisher: KEVIN's tool-size recommendation.

Frequently Asked Questions

Does KEVIN replace technician judgment?

No. KEVIN is a decision-support tool. Technicians should review the recommendation, math, historical evidence, and risk warnings before making changes.

Why does KEVIN need geometry information?

Geometry affects flex risk, pressure sensitivity, recommended tool size, and how aggressive the next move should be.

What if my interferogram does not exactly match one pattern?

Choose the closest pattern and explain any uncertainty in Technician Notes.

Why should every run be logged?

Logged runs create the historical evidence KEVIN uses to compare future jobs and improve recommendations.

Can I edit a run after saving it?

Yes. Use the Repository page, select Edit on the row, make the correction, and save the record.

Run KEVIN button does not produce a recommendation.

Check that all required measurement fields are completed and that a pattern is selected.

Recommendation seems too aggressive.

Check geometry, thickness, units, pressure, and cycle time. Review the risk warnings before making the change.

Repository does not load.

Refresh the page and verify that the browser has network access to the repository file.

The wrong units were entered.

Correct the measurement fields before logging the run. If the run was already saved, edit it in the repository.

Run result will not save.

Complete all required final-result fields and add notes if the outcome is unusual.