RETICLE RED TUTORIAL

# Laser Lab

## Calculators, MOPA colour recipes, test cards and a galvo delay tuner. Free in your browser.

Recorded on the live site · calculators · MOPA · test cards · delay tuner

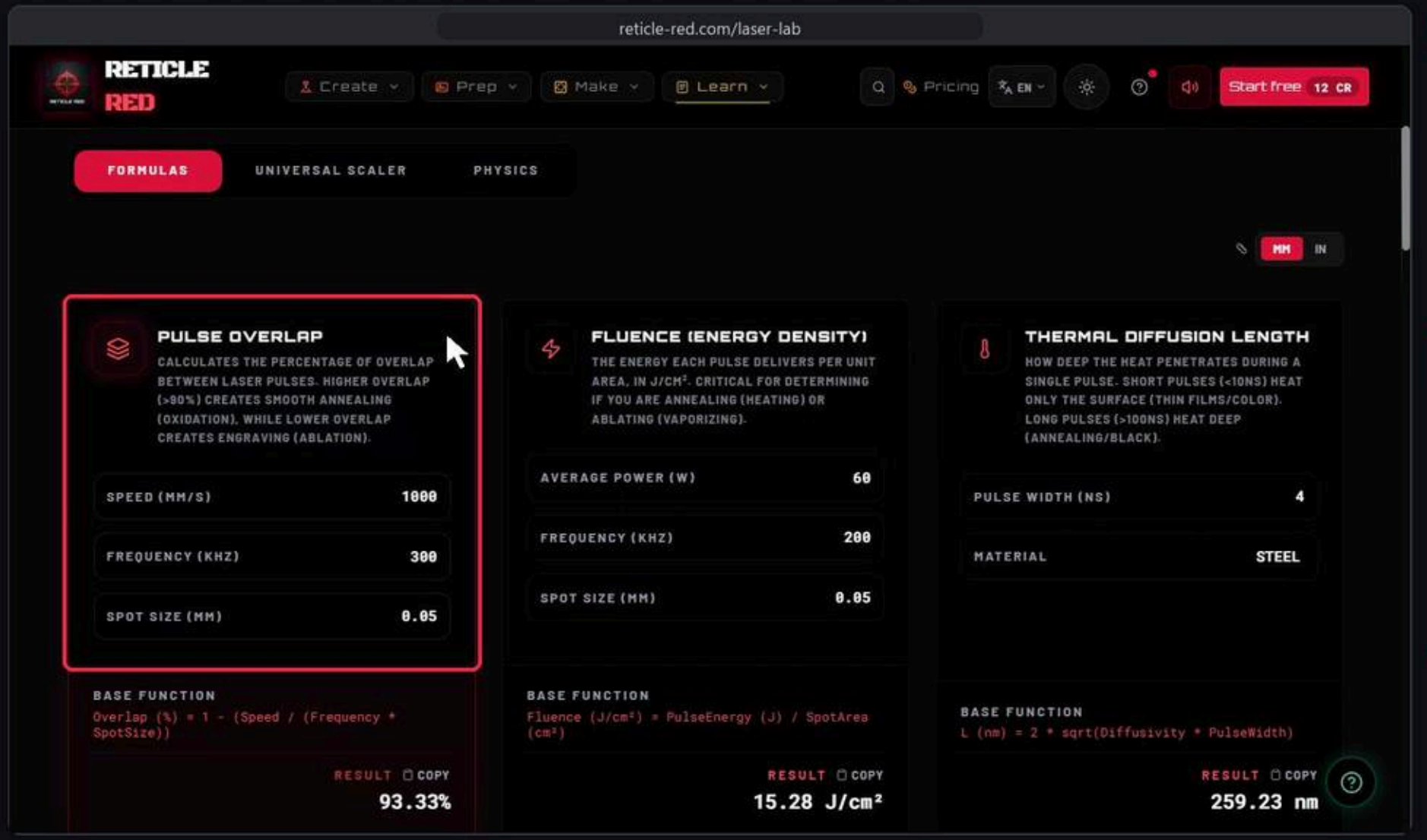
reticle-red.com/laser-lab

PART 1 OF 2

# Calculators and MOPA colour

A starting recipe, a bracket grid and four exports

Calculators and MOPA colour — A starting recipe, a bracket grid and four exports




STEP 1 OF 5

## Calculators

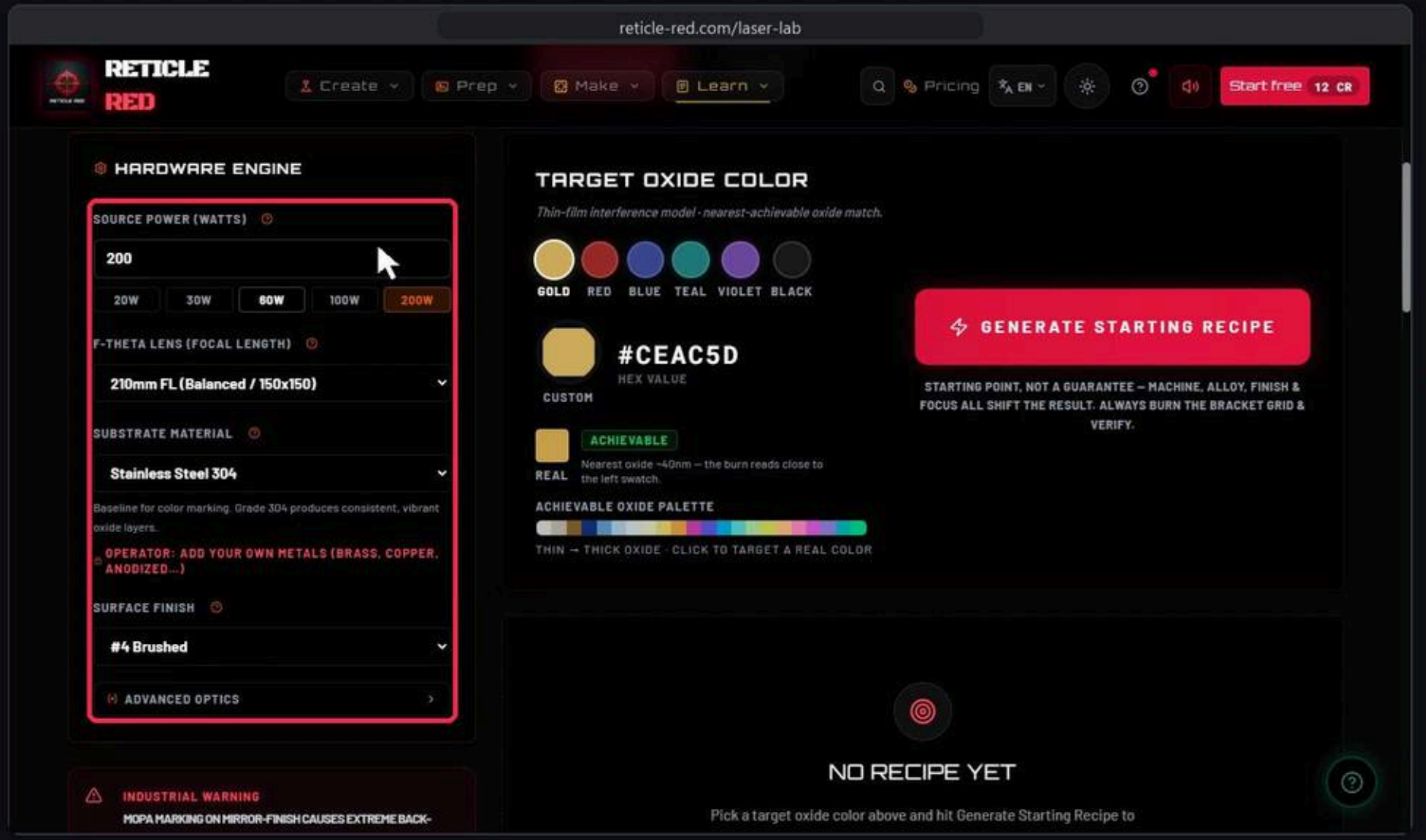
Pulse overlap, fluence, rotary steps, DPI to interval,

depth of field and more. Every result has a Copy button.

CLOSE-UP



Calculators and MOPA colour — A starting recipe, a bracket grid and four exports



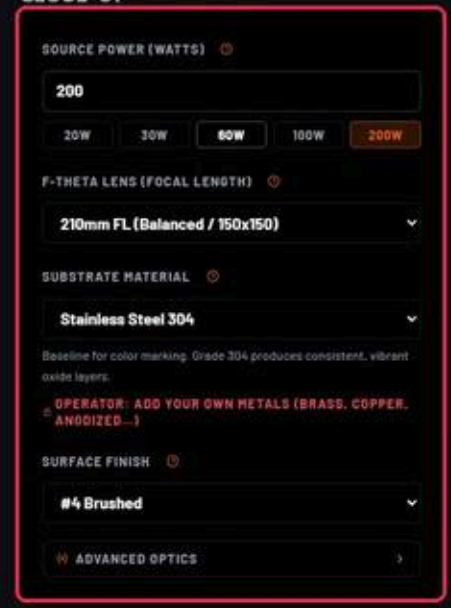

STEP 2 OF 5

## MOPA Predictor: your hardware

Source power, F-theta lens and the metal:

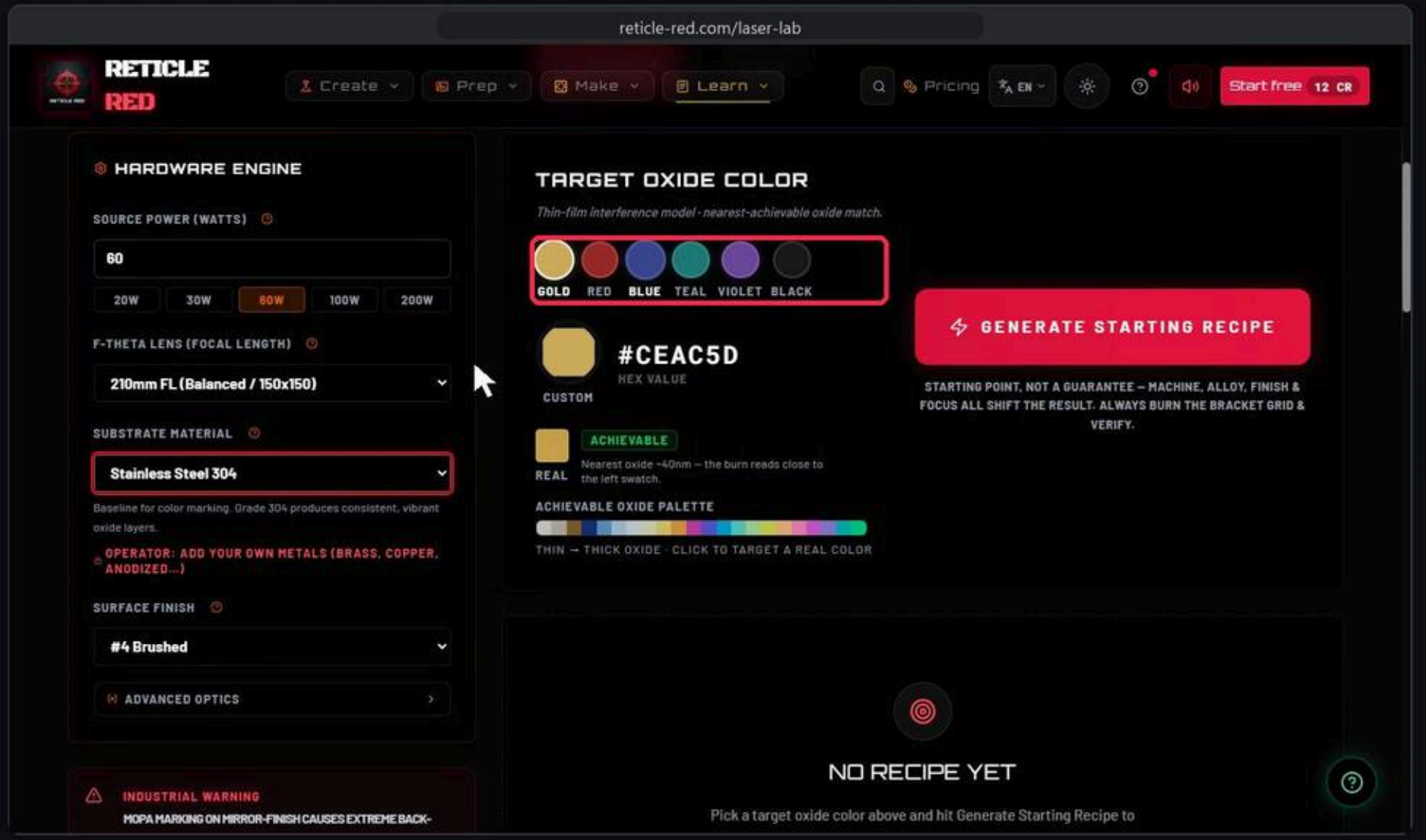
Stainless Steel 304, 316 or Titanium Gr.5.

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Calculators and MOPA colour — A starting recipe, a bracket grid and four exports




STEP 3 OF 5

## Generate Starting Recipe

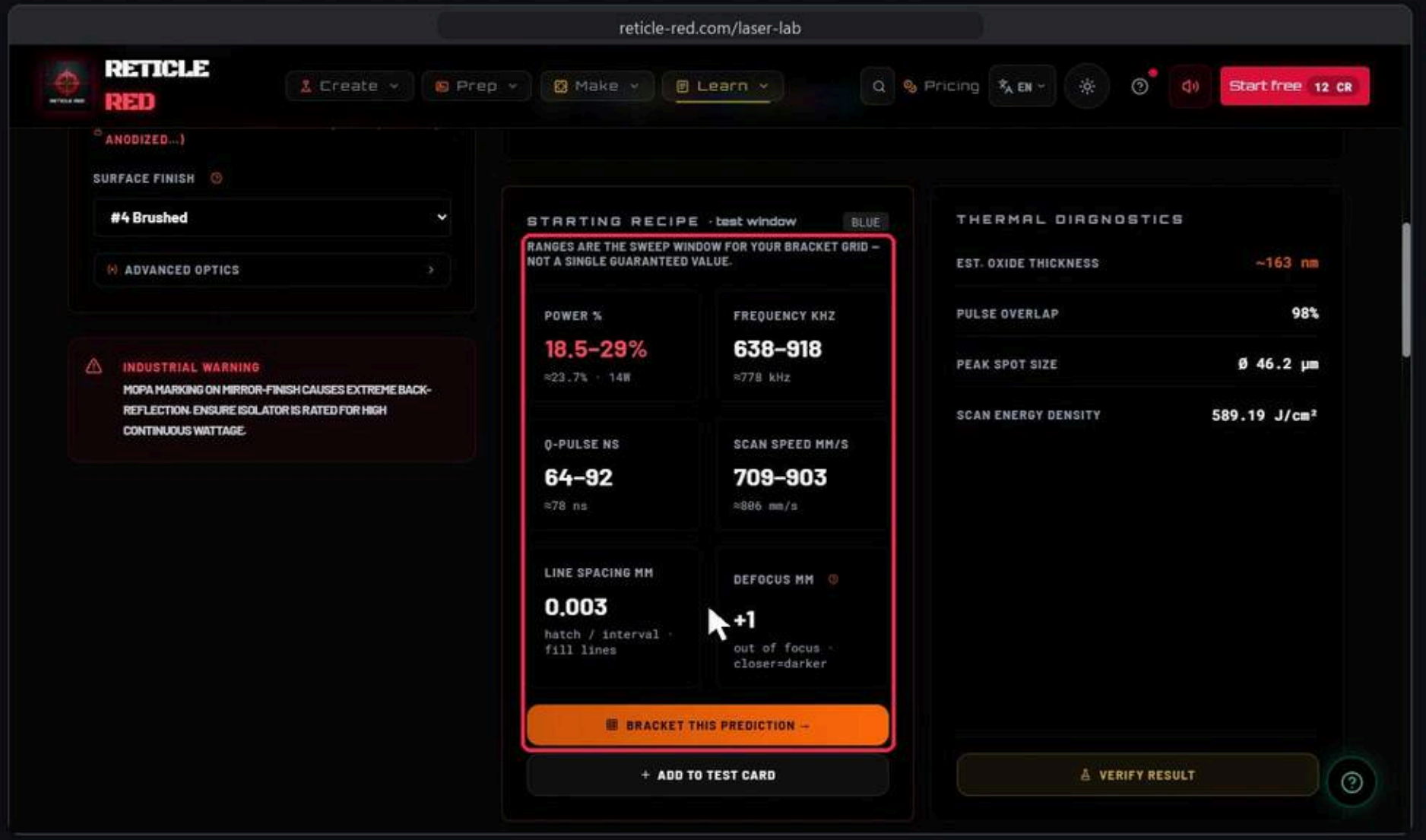
Pick a target oxide colour.

A starting point, not a guarantee: burn the bracket grid.

CLOSE-UP



Calculators and MOPA colour — A starting recipe, a bracket grid and four exports

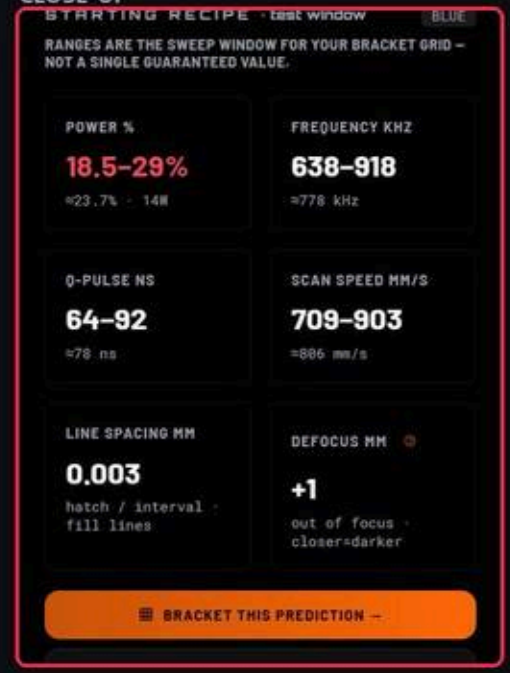



STEP 4 OF 5

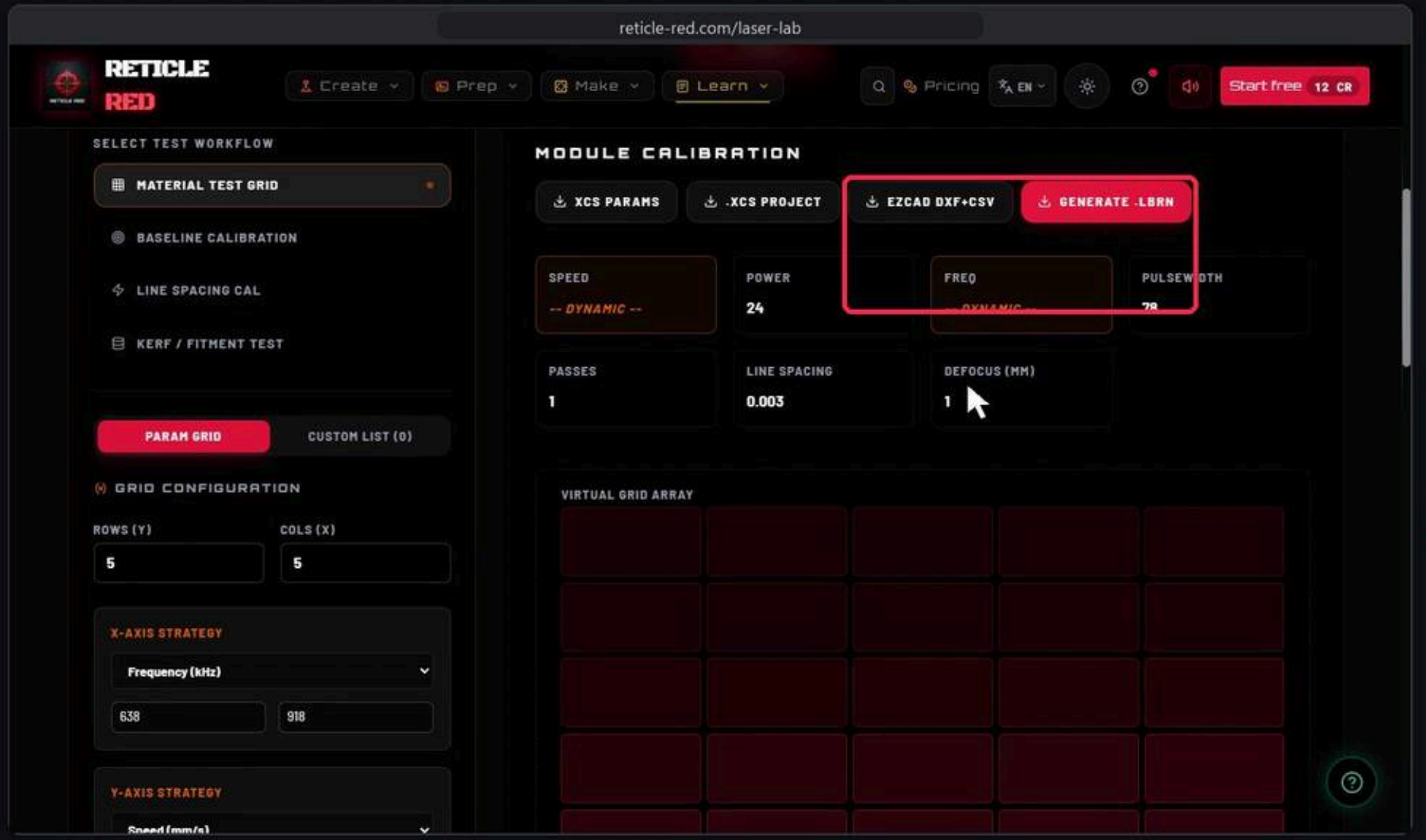
## Bracket This Prediction

A 5 × 5 frequency × speed sweep around the recipe.

CLOSE-UP



Calculators and MOPA colour — A starting recipe, a bracket grid and four exports




STEP 5 OF 5

## Export the colour card

GENERATE .LBRN for LightBurn, EZCAD DXF+CSV,

XCS PARAMS or an .XCS PROJECT for xTool.

CLOSE-UP

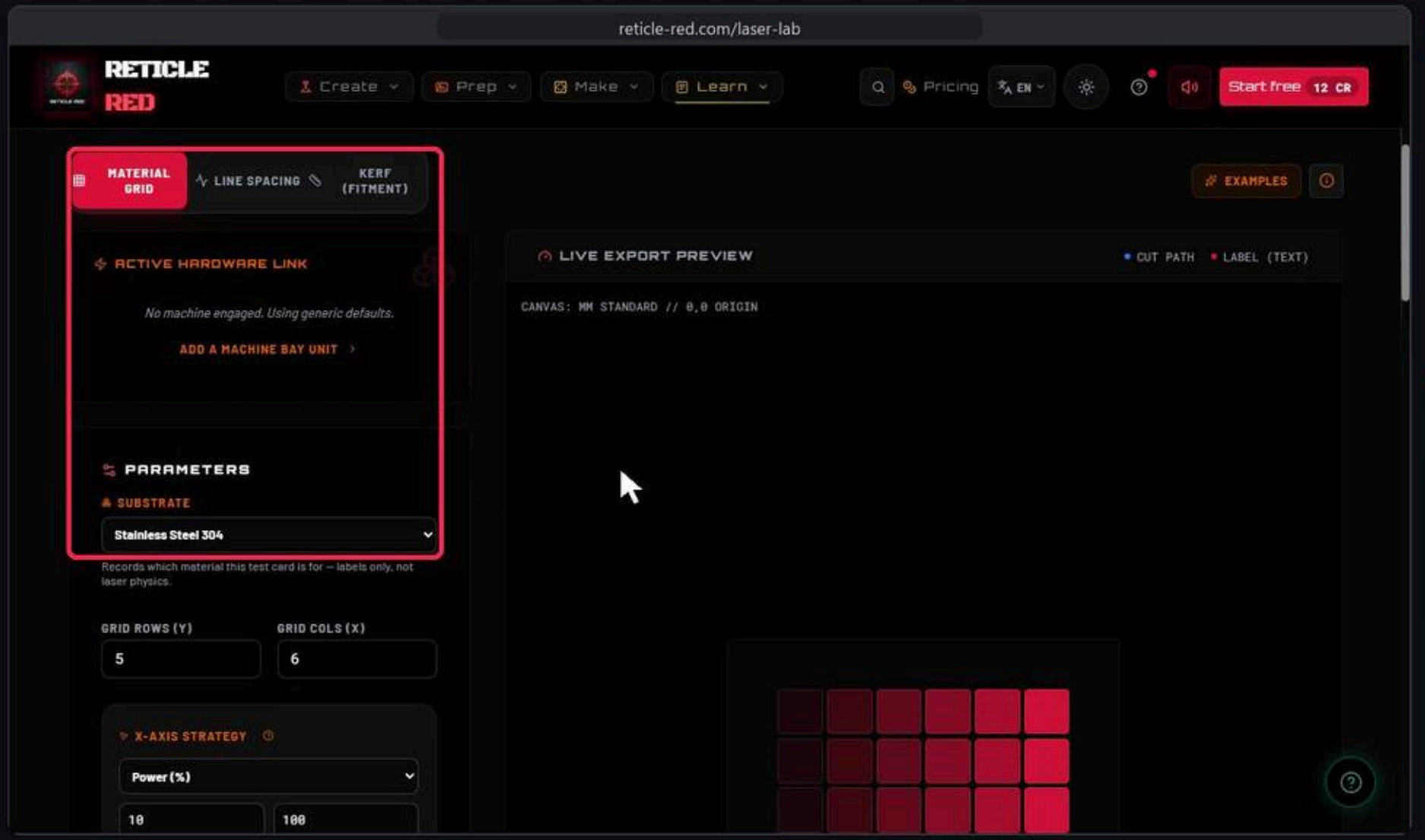


PART 2 OF 2

# Test cards and delay tuning

Material grid, line spacing, kerf and the directional card

Test cards and delay tuning — Material grid, line spacing, kerf and the directional card



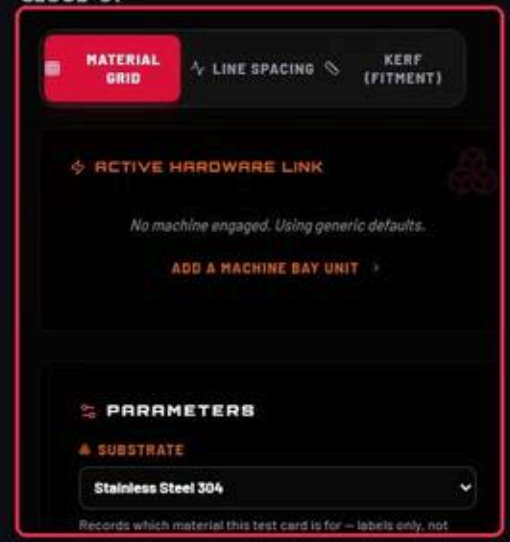

STEP 1 OF 8

## Material & Kerf Tests

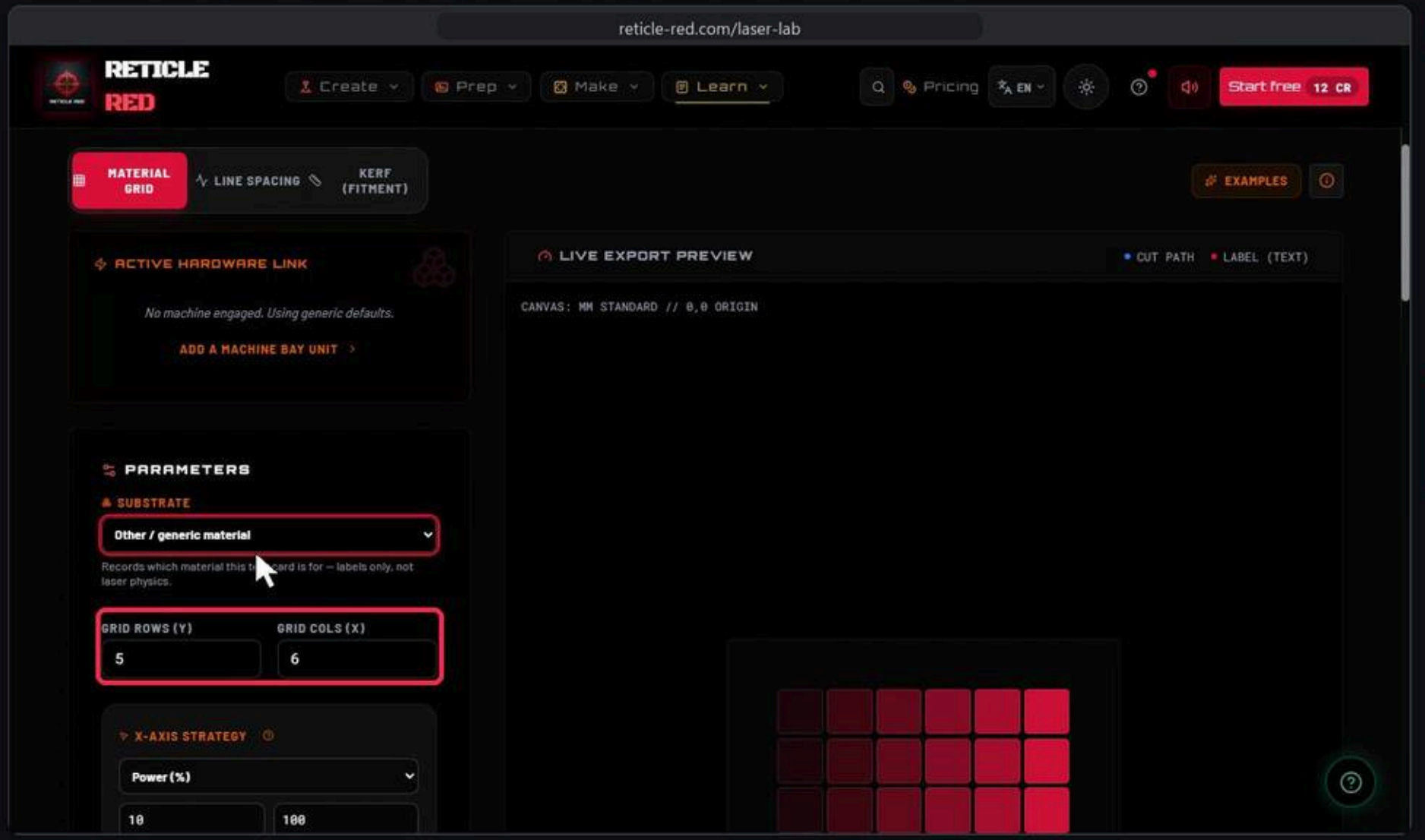
Material Grid, Line Spacing and Kerf (Fitment) test cards.

Substrate: a metal, or Other / generic material.

CLOSE-UP



Test cards and delay tuning — Material grid, line spacing, kerf and the directional card




STEP 2 OF 8

## Rows, columns and axes

Choose what each axis sweeps: power, speed, frequency,

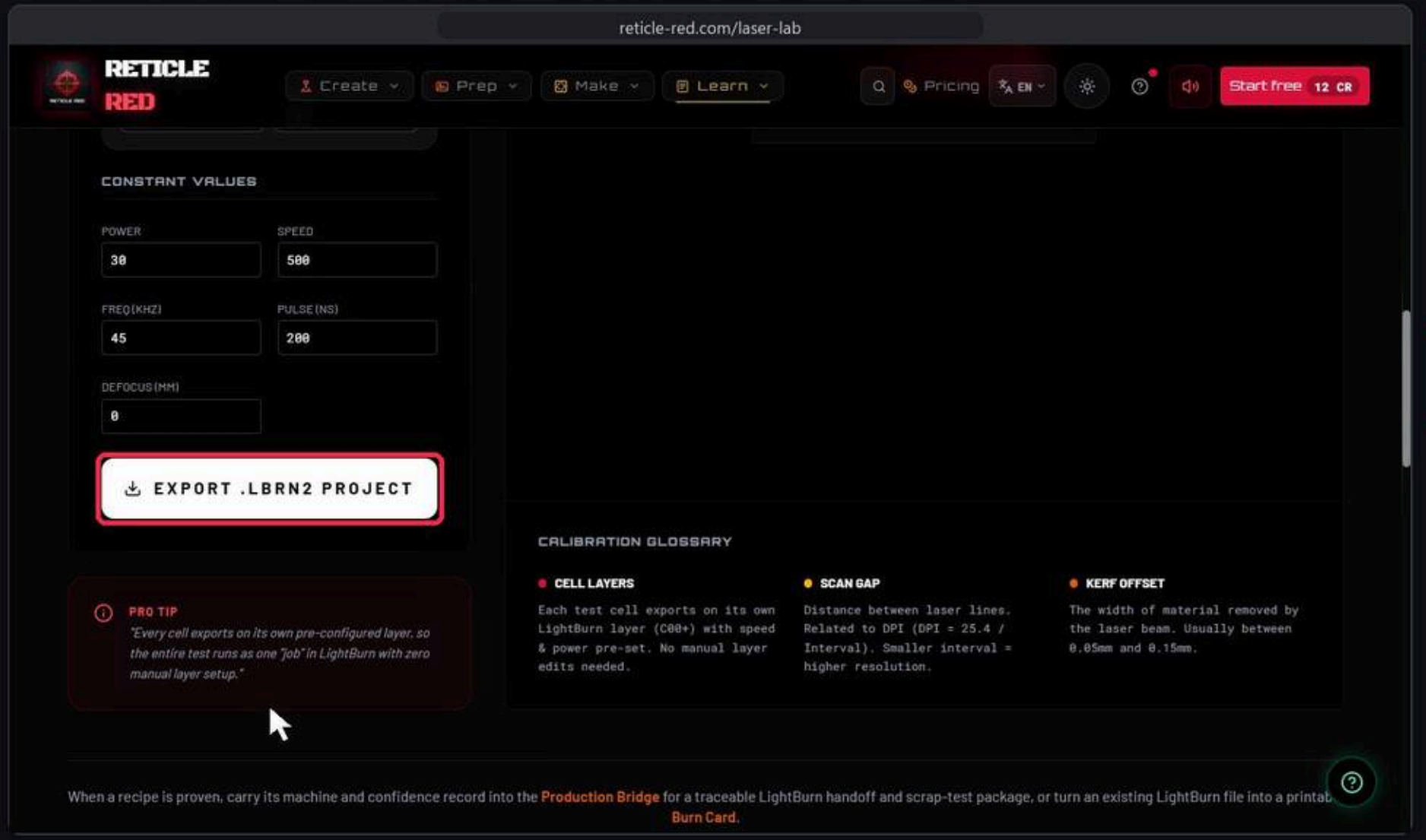
pulse width, line spacing or defocus.

CLOSE-UP

GRID ROWS (Y) 5

GRID COLS (X) 6

Test cards and delay tuning — Material grid, line spacing, kerf and the directional card




STEP 3 OF 8

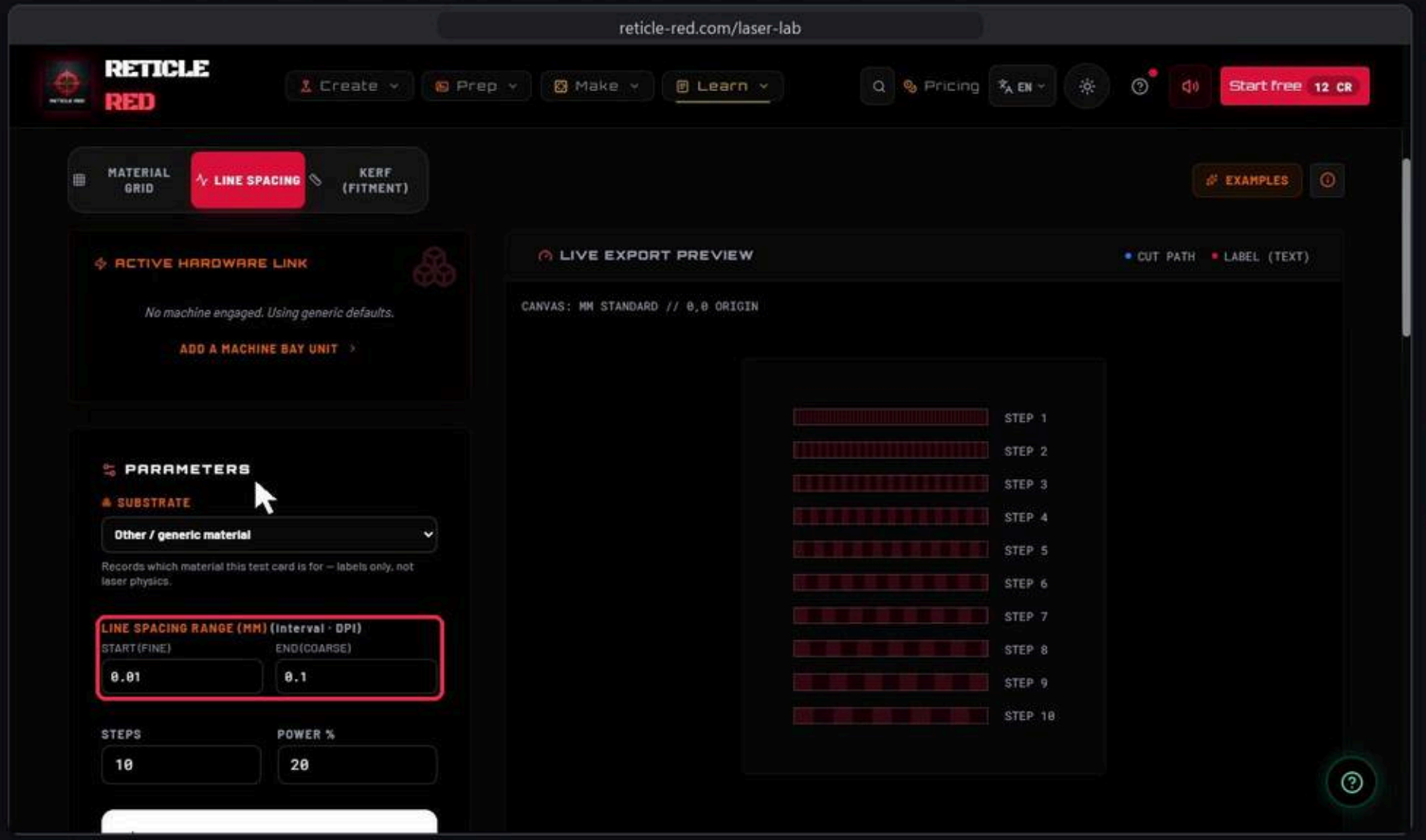
## Export .lbrn2 Project

One LightBurn layer per cell, settings filled in.

Labels on the T1 tool layer: on screen, never burned.

CLOSE-UP






STEP 4 OF 8

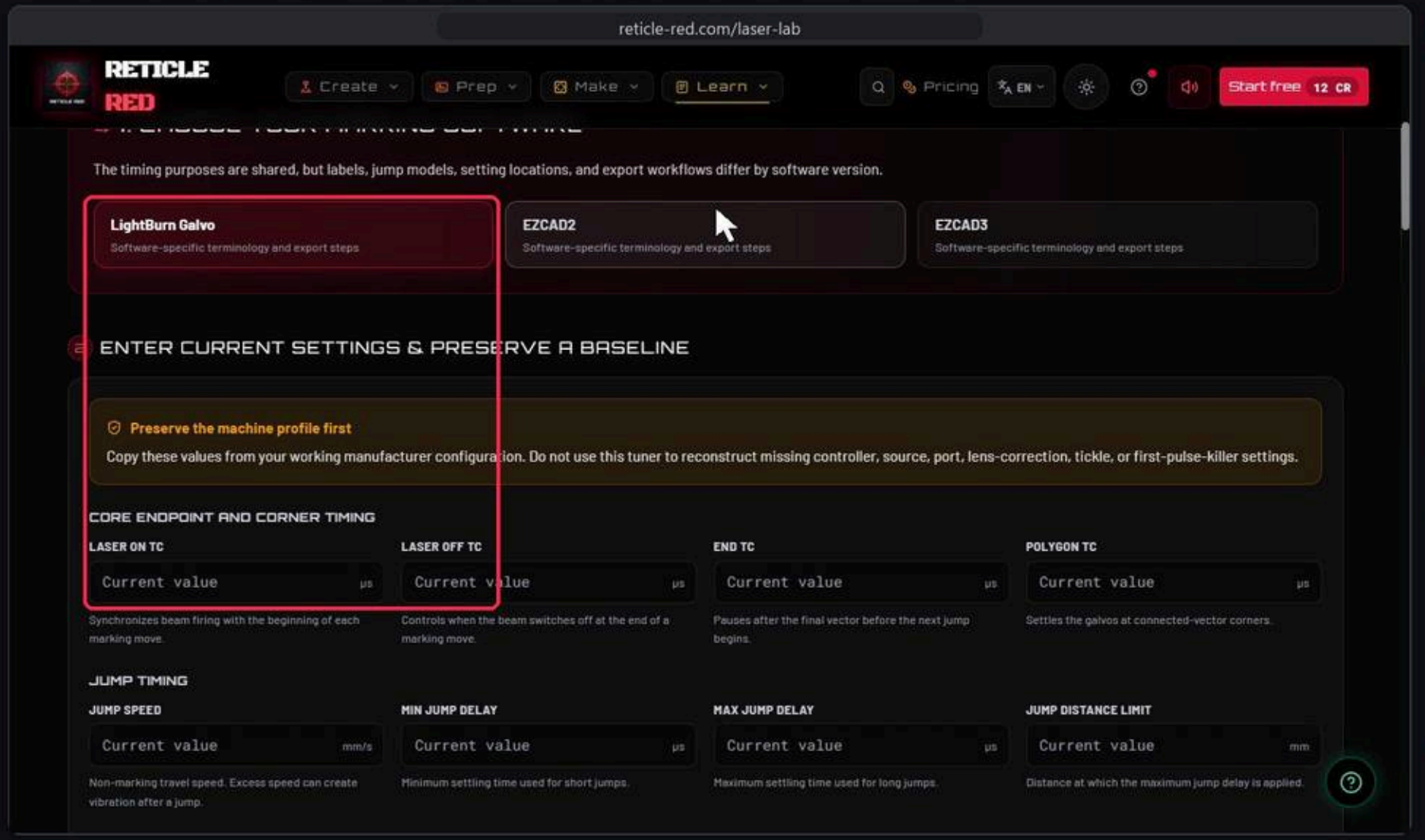
## Line Spacing and Kerf

Line Spacing: fine to coarse fill interval.

Kerf (Fitment): slotted blocks measure what the beam removes.

CLOSE-UP






STEP 5 OF 8

# Delay Tuner: baseline first

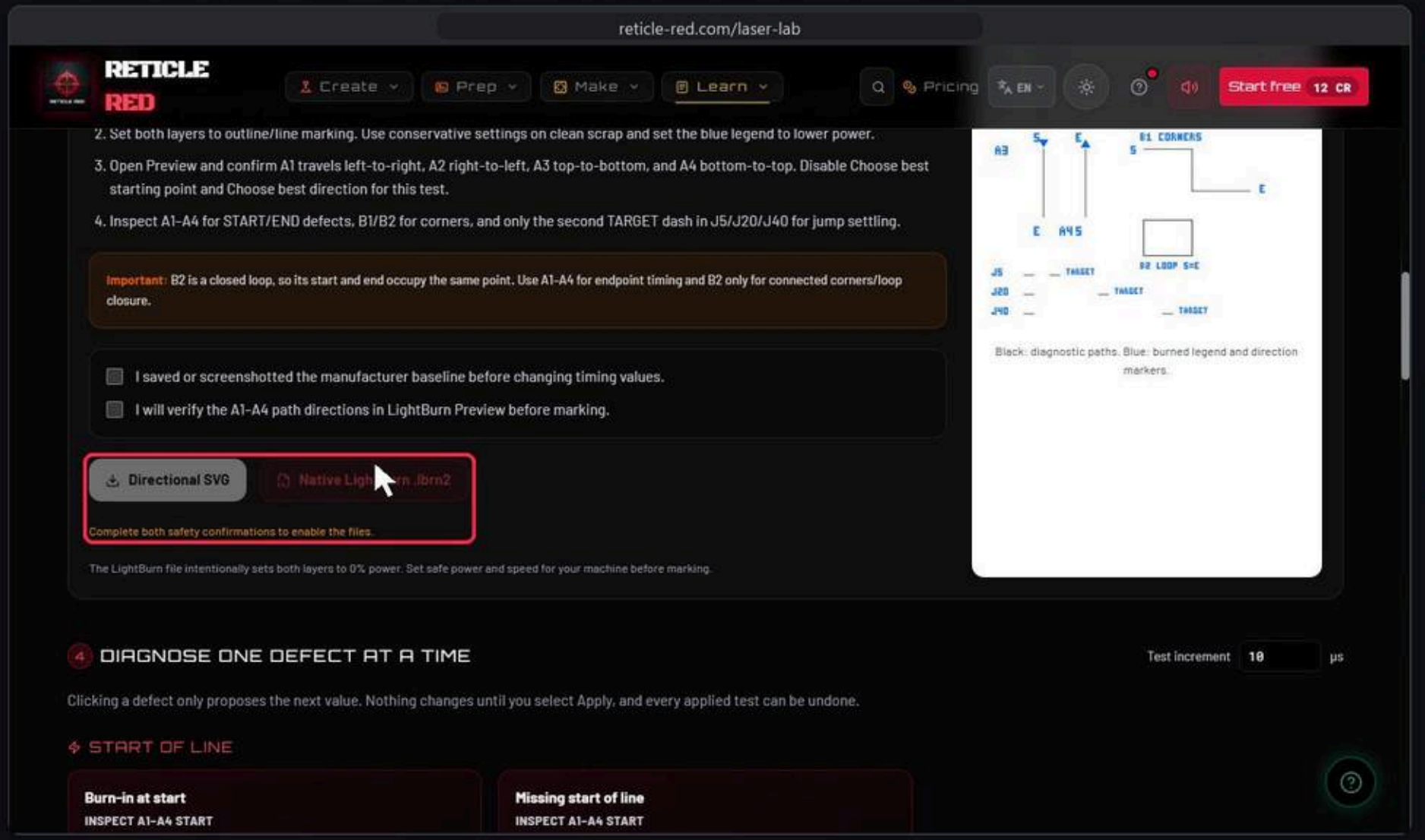
LightBurn Galvo, EZCAD2 or EZCAD3.

Enter your current timings and save them as a baseline.

CLOSE-UP



Test cards and delay tuning — Material grid, line spacing, kerf and the directional card



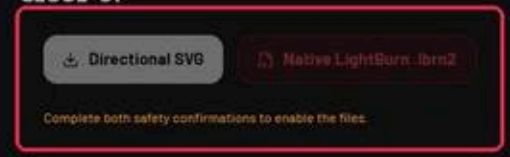

STEP 6 OF 8

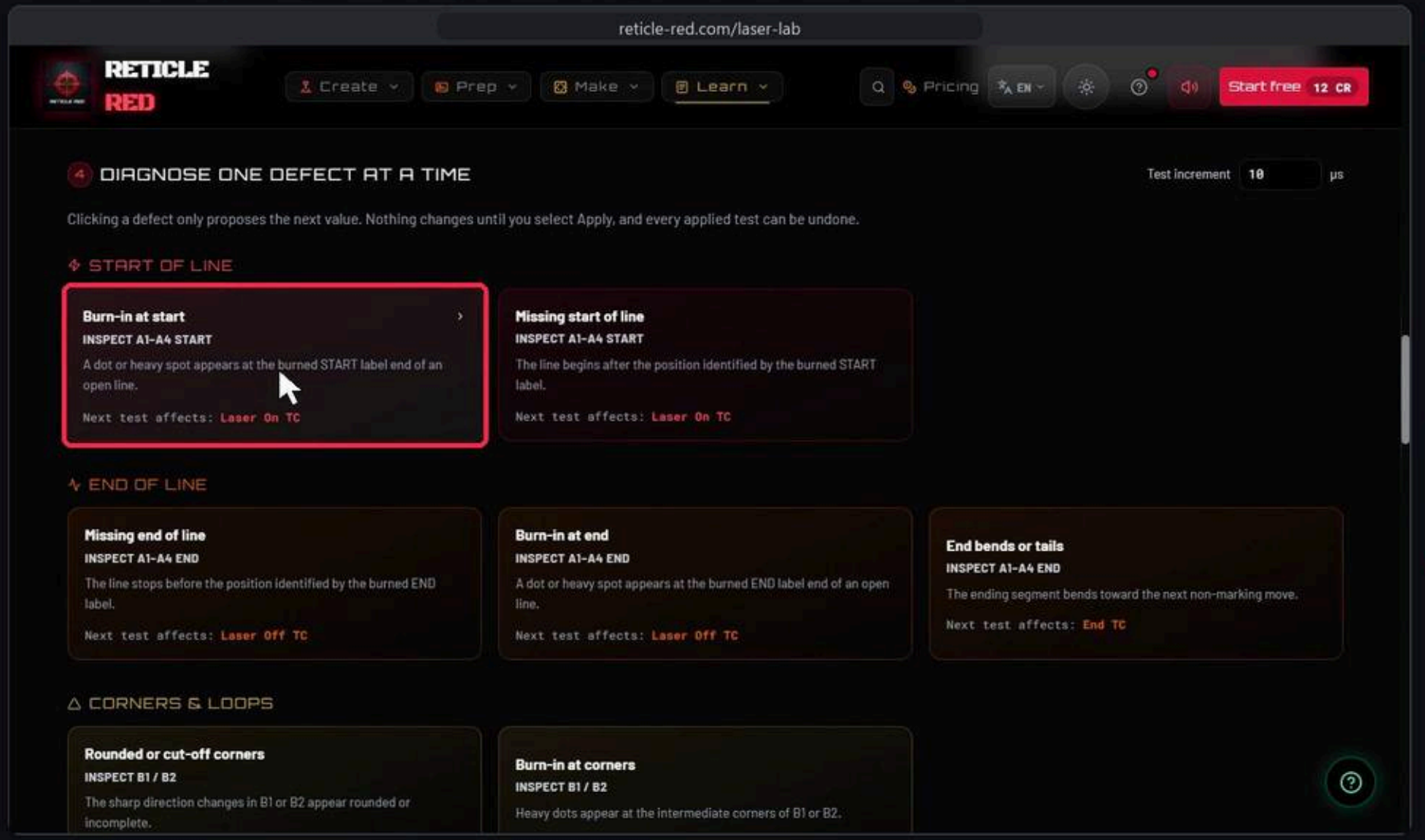
## The directional test card

Both confirmations unlock the SVG and LightBurn files.

The LightBurn file sets both layers to 0% power.

CLOSE-UP






STEP 7 OF 8

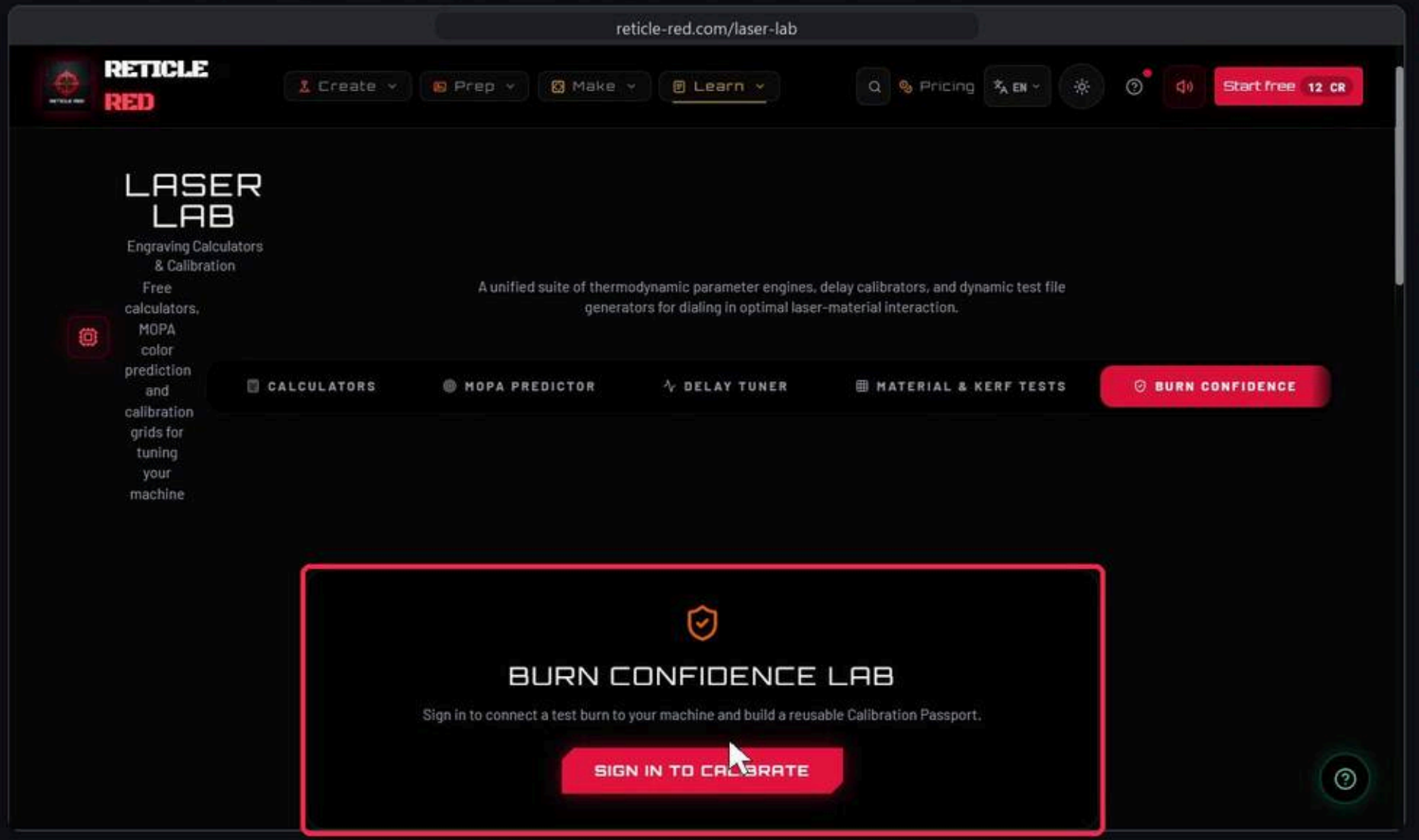
## Diagnose one defect at a time

Clicking a defect only proposes the next value.

Nothing changes until you Apply; every test can be undone.

CLOSE-UP






STEP 8 OF 8

## Burn Confidence

Links a test burn to your machine: needs a free account.

CLOSE-UP



# Dial in your laser

**Learn → Laser Lab**

Free in your browser, no account needed.

More tutorials: reticle-red.com/tutorials

Narration: AI voice (ElevenLabs). Screens: the real reticle-red.com.