



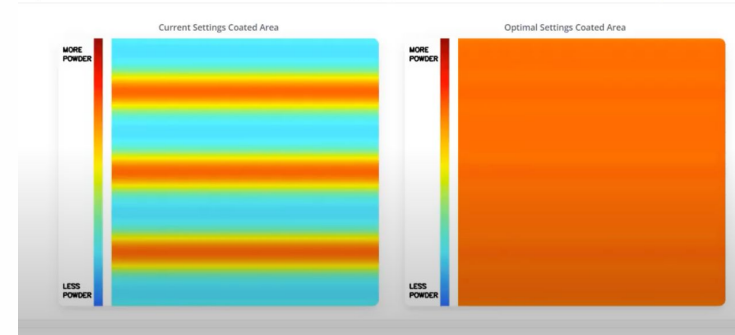
coatingAI

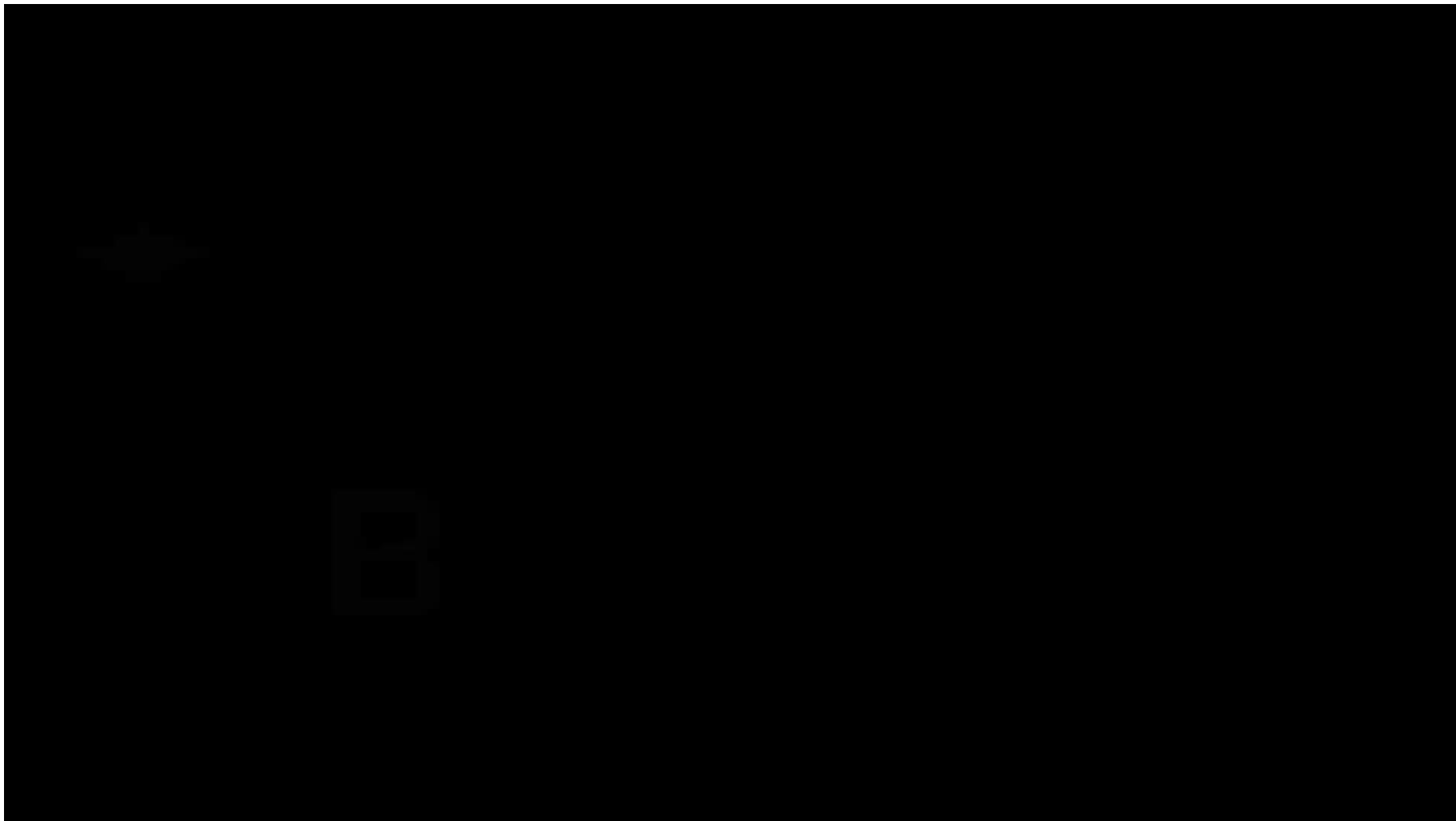
BlueprintTM

Optimization System

What is the Blueprint Optimization Program?

- Annual program
- License technology
- Optimization service
- 10% Powder Savings Guarantee
- Reporting to show continuous value





The background of the slide is a photograph of a gym, specifically showing rows of treadmills. A semi-transparent green overlay covers the left and top portions of the image. A diagonal line splits the image, with the bottom-right corner showing the original, unfiltered photo of the gym floor and equipment. The word "Benefits" is written in white, bold, sans-serif font on the left side, partially overlapping the green overlay and the treadmill image.

Benefits

Benefits

1. **Immediate powder savings** through line optimization
2. **Quick resolution of quality issues** that causes excess rework, reject, and man hours
3. **Create system and process** to maintain optimal coating conditions

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How it works?

How it works

4 Simple Steps

STEP 1

**BENCHMARK &
HEALTH CHECK**

STEP 2

**EQUALIZE
POWDER OUTPUT**

STEP 3

**CALIBRATE
SPRAY PATTERN**

STEP 4

**OPTIMIZE OUTPUT
BASED ON
MEASUREMENTS**

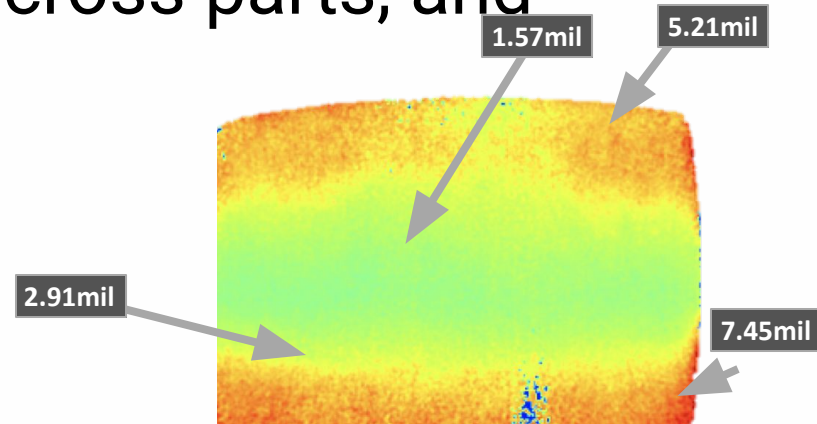
**MINIMAL PRODUCTION
INTERRUPTION**

Step 1: Benchmark and Healthcheck

- Review your current running conditions to understand the line performance, gun setups, variation in coating thickness across parts, and consumable status.

Production Impact:

No production impact as we are only taking measurements to understand current settings



Step 2: Equalize Gun Outputs

- Even gun distances
- Recalibrate and optimize gun outputs and settings to ensure even coating.

Production Impact:

- 30 minutes maximum on the line to even gun-to-gun distance and bag guns
- 1-2 people will go inside the booth
- Line will be stopped at this time



Step 3: Calibrate Spray Pattern

Calibration Process:

1. Test a single gun in a fixed position
2. Take measurements in horizontal and vertical directions
3. Input numbers to create the spray model

Production Impact:

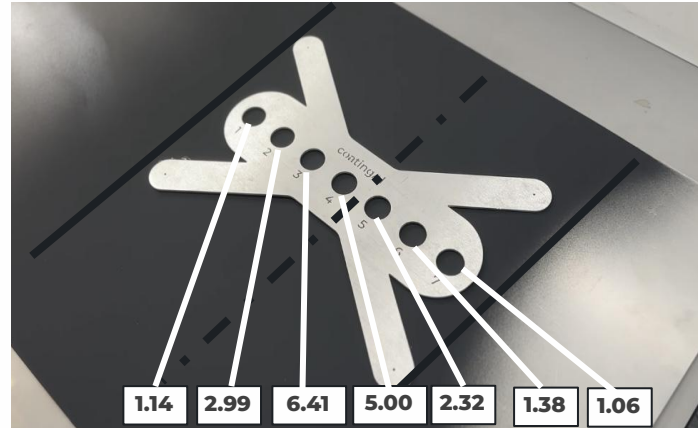
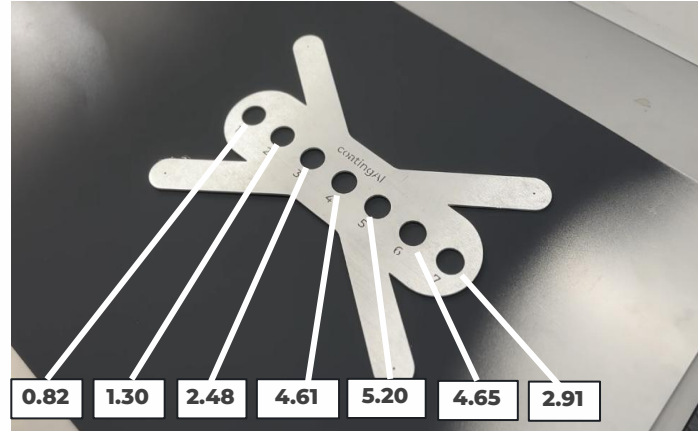
- Will need 2 flat panels (preferably 4'x2' *holes of 2ft side*)
- We need 60ft of free conveyor space to hang the panel
- Line will continue to run production



Calibrate

Input the values to create
the spray model

All measurements in mil



Calibrate Spray Pattern

Obtain Ideal Gun Settings

Reciprocating Guns:

- Speed
- Range
- Nozzle Angle

Fixed Guns:

- Ideal Gun Distance
- Nozzle angle

Optimal machine settings



Active Guns
5



Gun Movement Range
9.45 in



Gun Movement Period
1.7s



Gun Movement Speed
0.95ft/s



Nozzle Rotation Angle
0 degrees

Simulation results



Current Settings

Uniformity
71.0%

Powder Waste
20.9%

Optimal Settings

Uniformity
94.8% (+23.8%)

Powder Waste
4.1% (-16.8%)

☐ Calibrate Powder Amount (optional)

☒ Visualize graphs

Applied spray

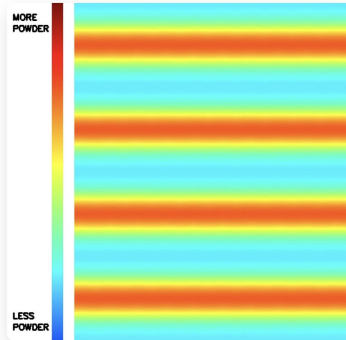
Movement chart

Applied spray animation

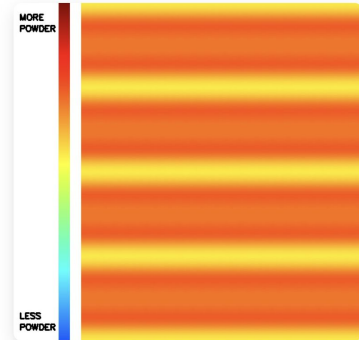
Nozzle rotation angle

Powder Usage Pie Chart

Current Settings Coated Area



Optimal Settings Coated Area



Step 4: Optimize Powder Outputs Based on Measurements

- Take new measurements across coated parts
- Adjust powder outputs arrive at minimum thickness requirements

Production Impact:

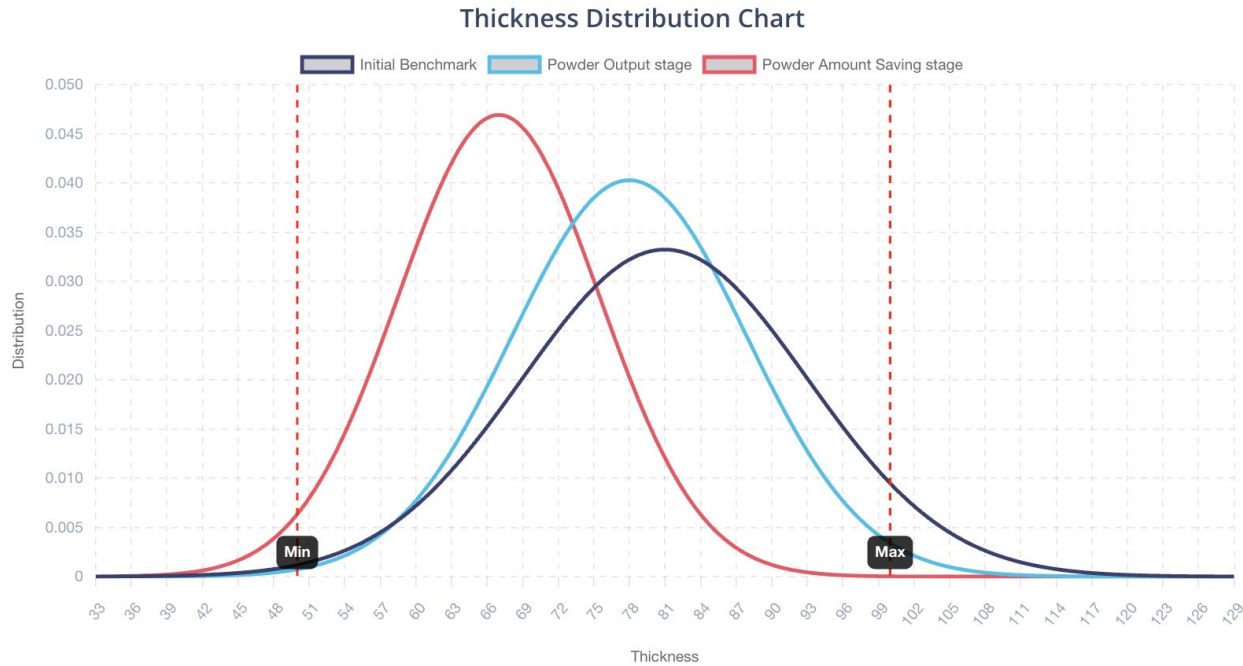
- None. We will continue to run production parts with new settings and take new thickness measurements



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Example

Optimization Results



 **Benchmark**

 **Equalization**

 **Final Optimization**

Optimization Results

Initial Benchmark

Mean: 80.8

Std: 12.4

Min: 58

Max: 105

Powder Output stage

Mean: 78.1

Std: 9.9

Min: 67

Max: 97

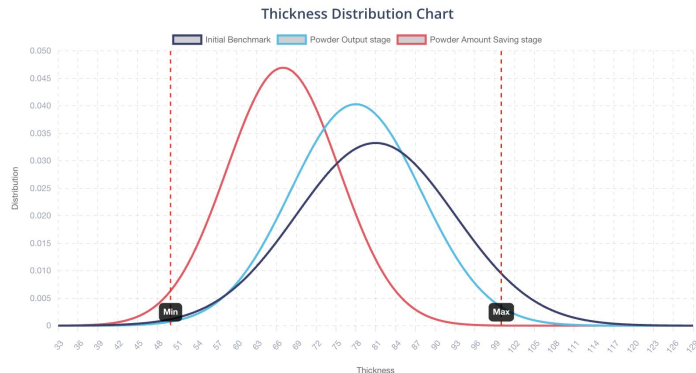
Powder Amount Saving stage

Mean: 67.1

Std: 8.5

Min: 54

Max: 88



31 % Quality improvement

16 % Powder Saved

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FAQ

I have many color changes... Do I have to calibrate for every color and every size?

NO

We have many options for you, depending on your PLC and reciprocator setup.

The goal is to find the best balance of coating performance and operational efficiency.

We do not want to cause operational delays or complexity for operators.

All of my parts are curved, not flat. Can Blueprint help me?

YES

Our optimization ensures a uniform powder cloud, which improves the quality independent of the shape of the part. This will reduce the need for manual touch-ups, overspray, and overcoating.

How often do I need to recalibrate?

Regularly.

The line is constantly changing due to wear on parts, line condition, and coating volume. Our program typically recommends monthly recalibrations with weekly fine tunings (15 minutes).

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CONTACT PAGE