TechSupport

www.epiloglaser.com
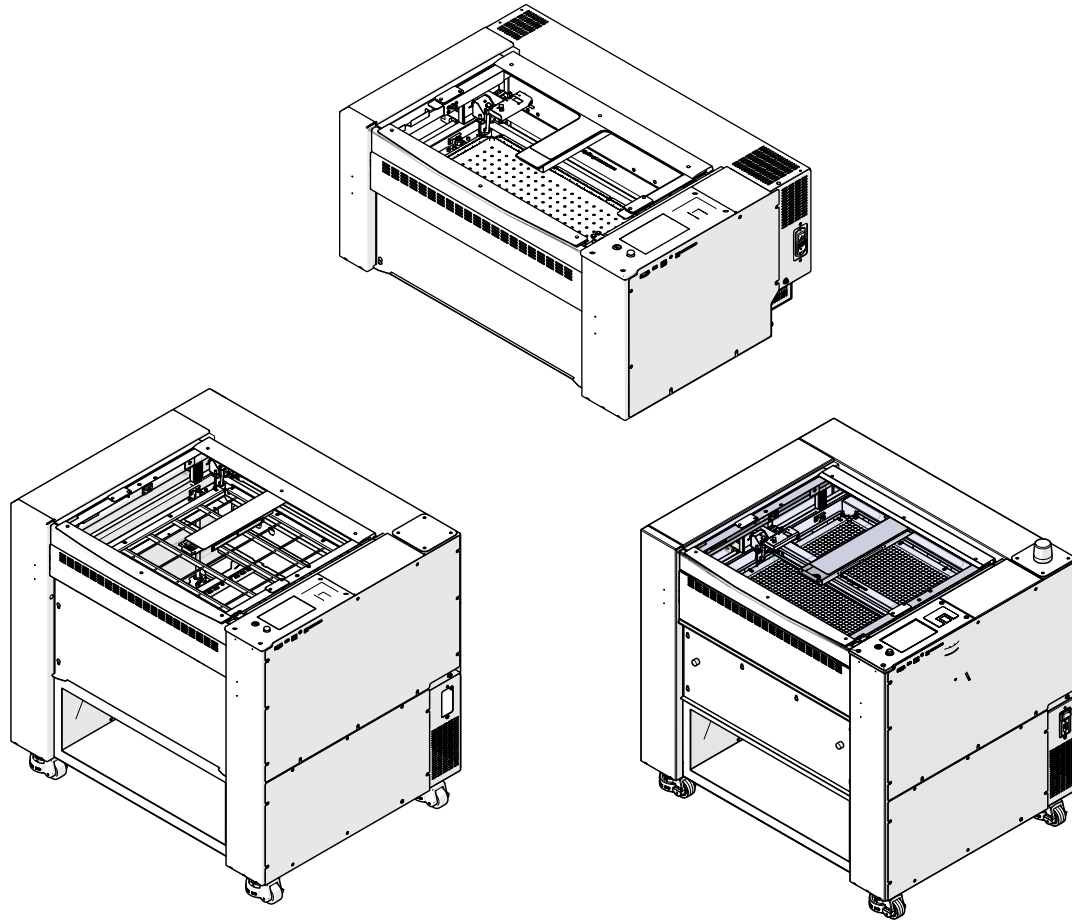tech@epiloglaser.com
303-215-9171

Vector Match Adjustment

Fusion Maker, Fusion Edge,
Fusion Pro 24 & Fusion Pro 36

Materials Needed

- The latest firmware, version 1.0.7.1 or above
- Vector Match calibration art files
- Markable material
  - Anodized aluminum is recommended
- Magnifying glass or loupe

Firmware and art files available here:
- https://www.epiloglaser.com/tech-support/vector-match-calibration/

03/2023

Introduction

With the introduction of two new settings, Vector Match and Vector Match Distance, the y-axis and x-axis positioning in certain 17000-series Fusion engravers can be further tuned to achieve more refined vector paths when processing vector shapes.

This procedure should only be completed if it is observed that the origin (starting point) and the termination (ending point) of a vector shape do not meet, as shown below:
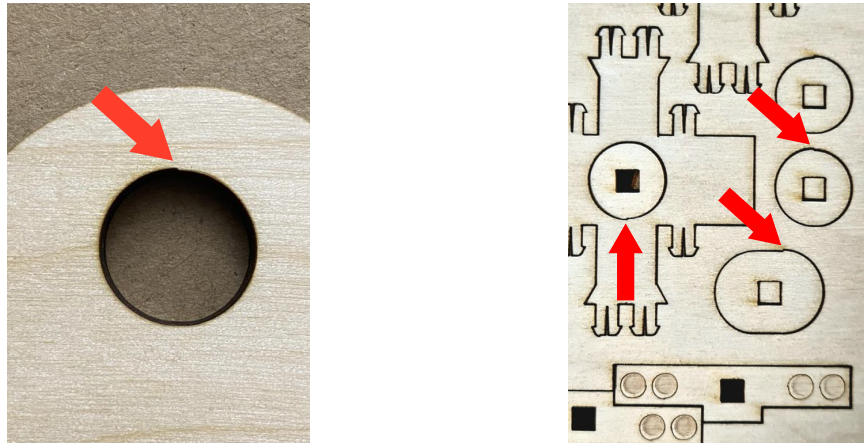
# Vector Match Settings Overview

The Vector Match settings fine tune the termination point of the shape vertically or horizontally. This is achieved by adding or subtracting encoder counts along the vector path, which in turn causes the motion control system to position the lens carriage more accurately.

Vector Match can be adjusted in both the X or Y axes in the engraver. Vector Match values will be displayed as seen below, with the first value corresponding to the x-axis and the second value corresponding to the y-axis:
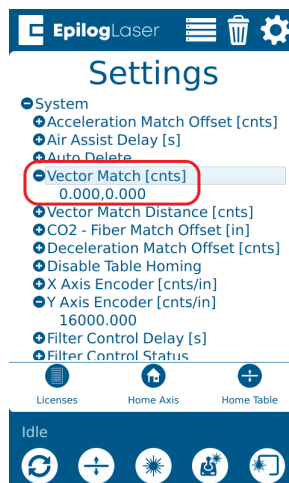
VECTOR MATCH ADJUSTMENT

Vector Match Distance can be adjusted in both the X or Y axes in the engraver. Vector Match Distance values will be displayed as seen below, with the first value corresponding to the x-axis and the second value corresponding to the y-axis:
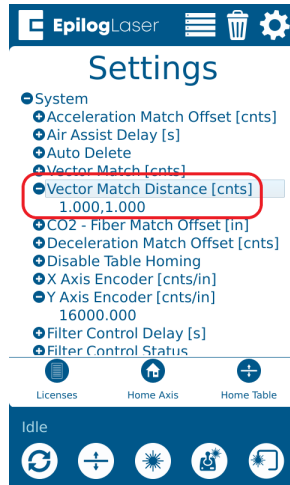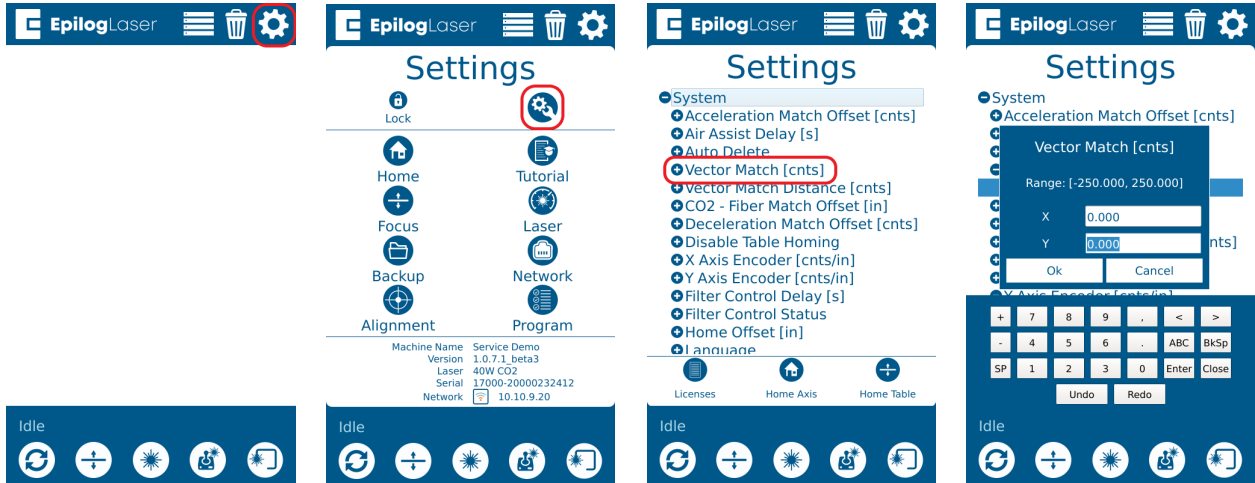

Vector Match and Vector Match Distance should be calibrated in both the X and Y axes to achieve the most accurate positioning between all graphic software packages.

Vector Match Adjustment Procedure for Y-Axis

1. Ensure that the engraver has been updated to the provided firmware version in the "Required Materials" list of this document.

2. Enter the System Settings, ensure that both the X and Y Vector Match [cnts] values are set to 0, and press OK:
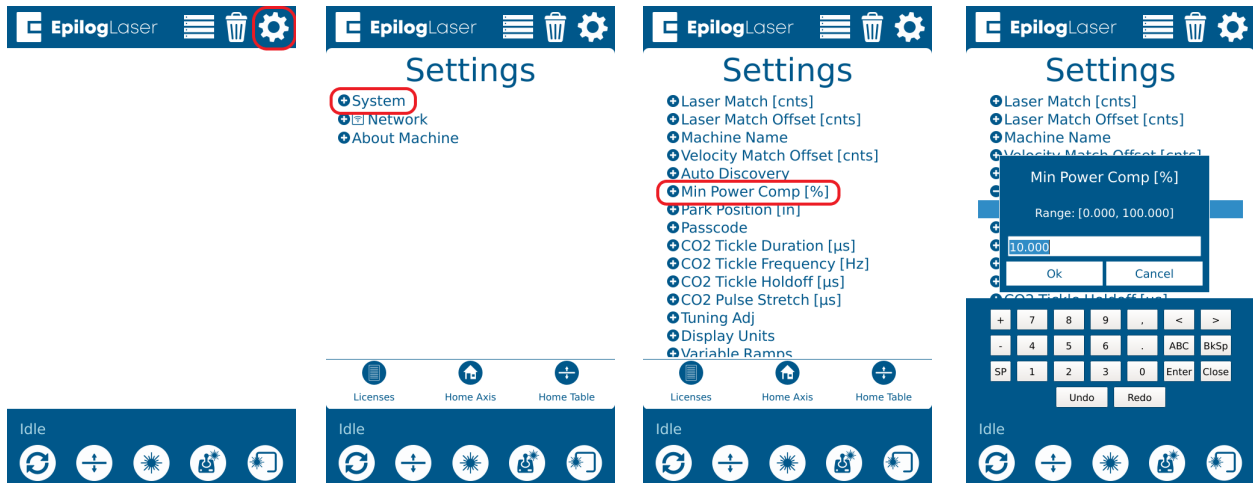

3. Now navigate to the Vector Match Distance [cnts] in the settings. Set the Vector Match Distance [cnts] to 8,000 for the X and 16,000 for the Y and press OK:
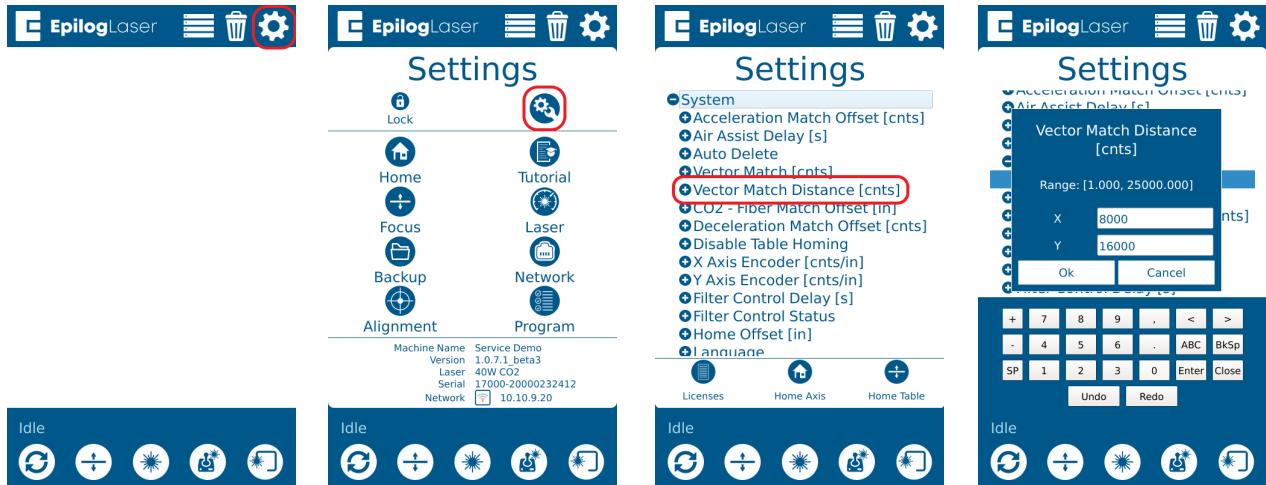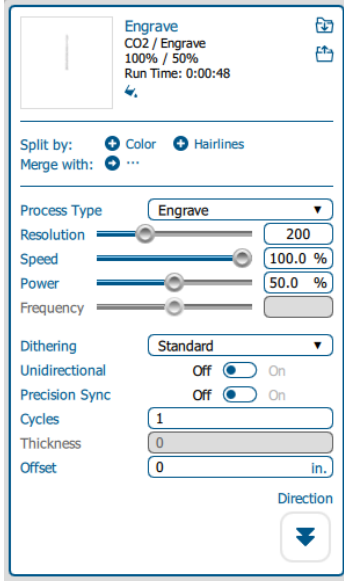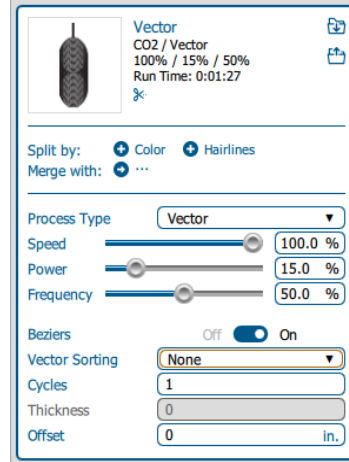
4. Navigate to Min Power Comp [%] and write down the current value to be re-entered later. Change the setting to 10 and press OK:

5. Send the Y_Vector_Match_Calibration file (link above in the materials needed) to the Epilog Dashboard. If the file is not imported into the Laser Dashboard with two processes (numbers engrave, circles vector), then click Split by Hairlines. Anodized aluminum is suggested as the best material for adjusting these settings. In the Epilog Dashboard, assign the following process settings to the job. If a setting is not listed below, it does not need to be changed:
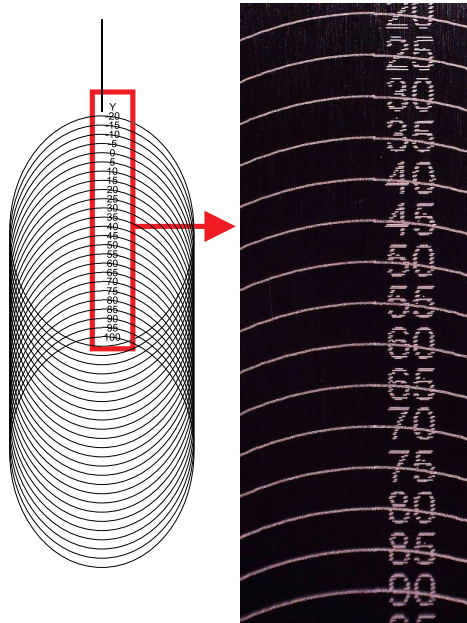

Resolution: 200
Speed: 100
Power: 50

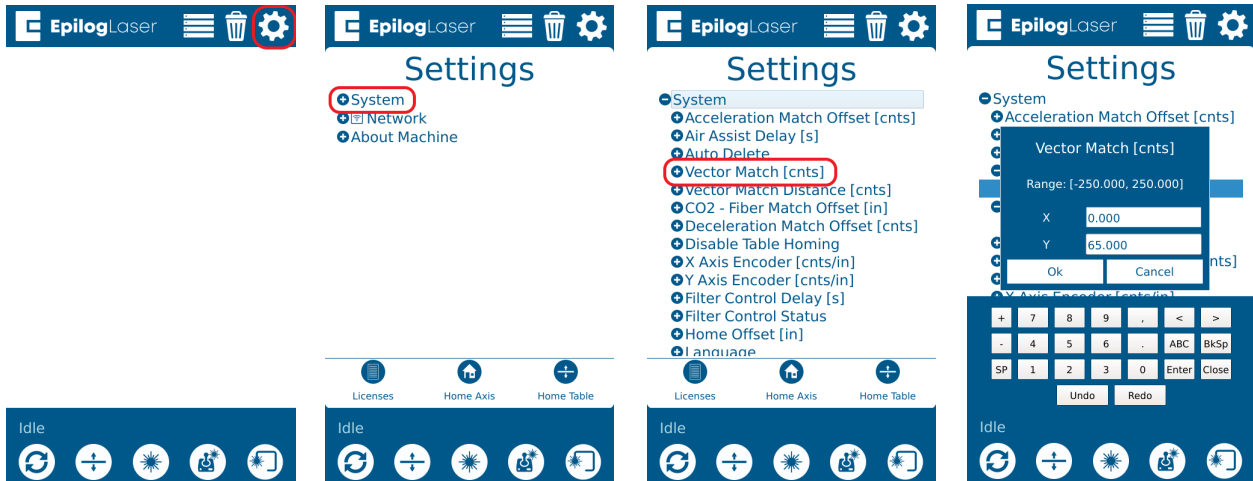Speed: 100
Power: 15
Beziers: On
Vector Sorting: Off

6. Print the Y_Vector_Match_Calibration file to the engraver and run the job.

7. Remove the material from the engraver and inspect the ovals to find the oval with a number value where the origin and termination points match:
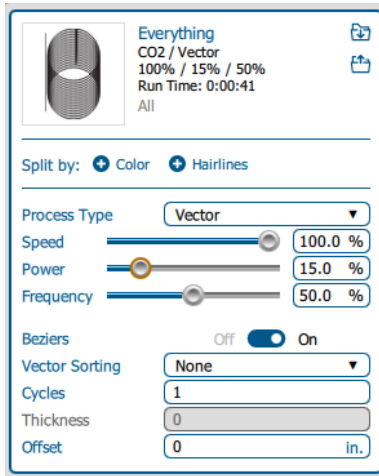

8. Navigate to the Vector Match [cnts] setting and enter the value that corresponds to the oval where the origin and termination points match and press OK. In this example, the ovals 60, 65, and 70 look good. We will use 65 as the Y-Axis Vector Match setting:
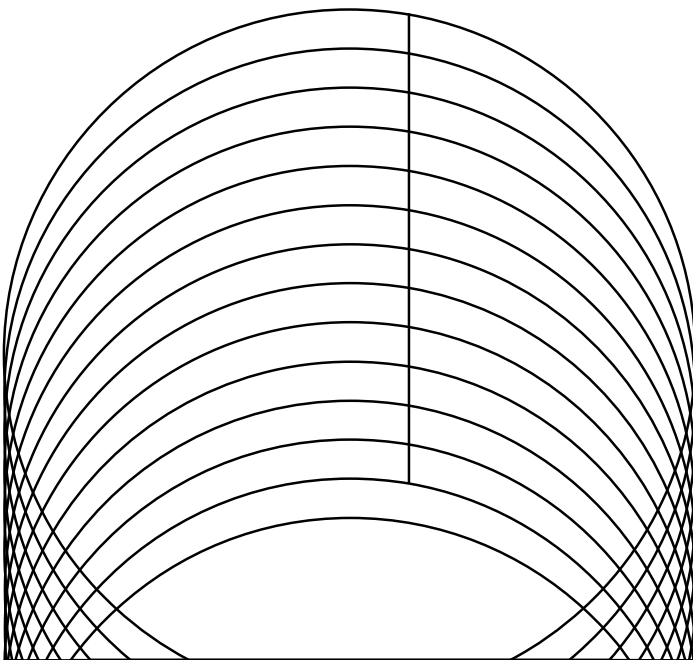
Vector Match Distance Adjustment for Y-Axis

1. Send the Y_Vector_Match_Distance_Verify file (link above in the materials needed) to the Epilog Dashboard. Anodized aluminum is suggested as the best material for adjusting these settings. In the Epilog Dashboard, assign the following process settings to the job. If a setting is not listed below, it does not need to be changed:


Speed: 100
Power: 15
Beziers: On
Vector Sorting: Off

2. Print the Y_Vector_Match_Distance_Verify file to the engraver and run the job.

3. Remove the material from the engraver and inspect the origin and termination points of the circles. If the origin and termination points of the circles match, no adjustment is needed and you may calibrate the X-Axis Vector Match settings. If there are a significant number of circles that do not match, the Vector Match Distance will need to be adjusted.
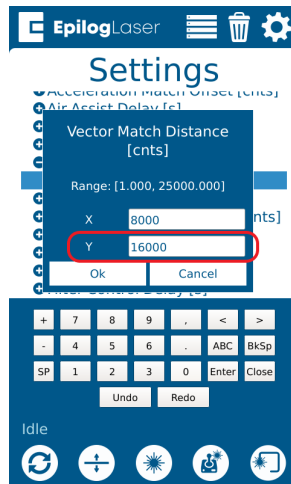

Good distance calibration, origin and termination points match up

Poor distance calibration, origin and termination points do not match up

7
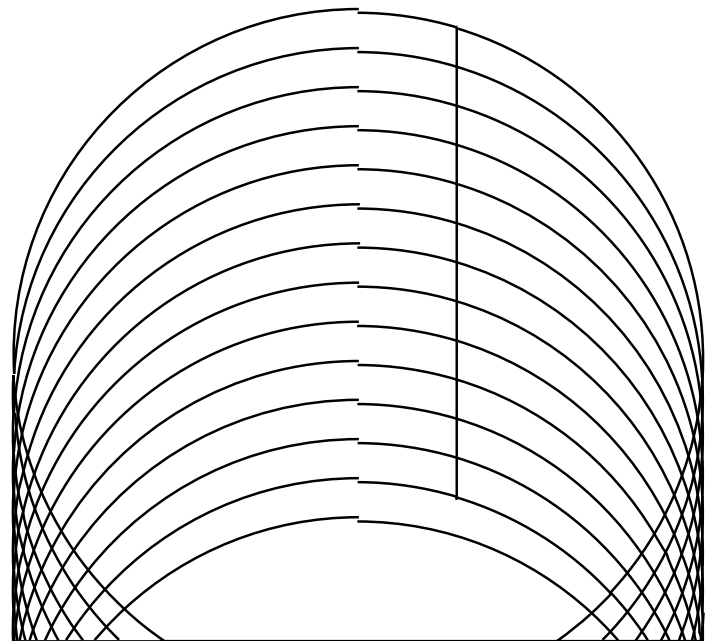
4. Navigate to Vector Match Distance [cnts] and adjust the Y-Axis Vector Match Distance, as described below:


- If the right side of the circle is lower than the left, the distance setting is too high- subtract 1,000 from the current value.

- If the right side is higher than the left, the distance setting is too low- add 1,000 to the current value.

- Round the value you enter to the nearest 1,000.

5. Move the artwork to the right using the XY coordinate positioning feature in the Epilog Dashboard, resend, and run the Y_Vector_Match_Distance_Verify file again.

- Move the artwork enough so the next mark will not coincide with the previous mark to allow for easier observation of the adjustment.

6. Repeat steps 2-4 of this procedure until the origin and termination points of the circles match.

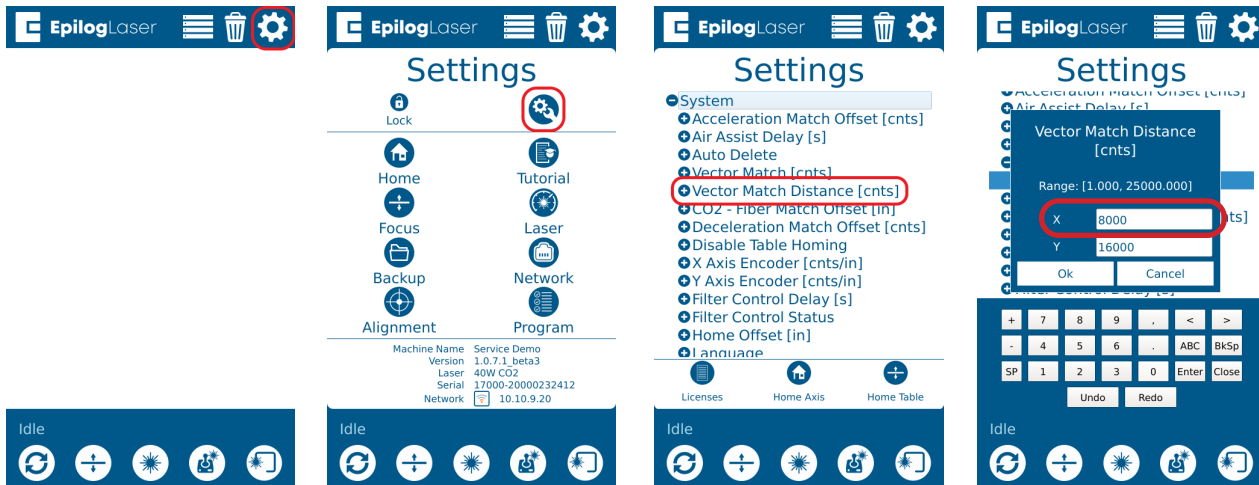# Vector Match Adjustment Procedure for X-Axis

1. Navigate to Vector Match [cnts] in the system settings, ensure that the X Vector Match [cnts] value is still set to 0, and press OK:

   - You do not need to adjust the Y-Axis value as it has been accurately calibrated.
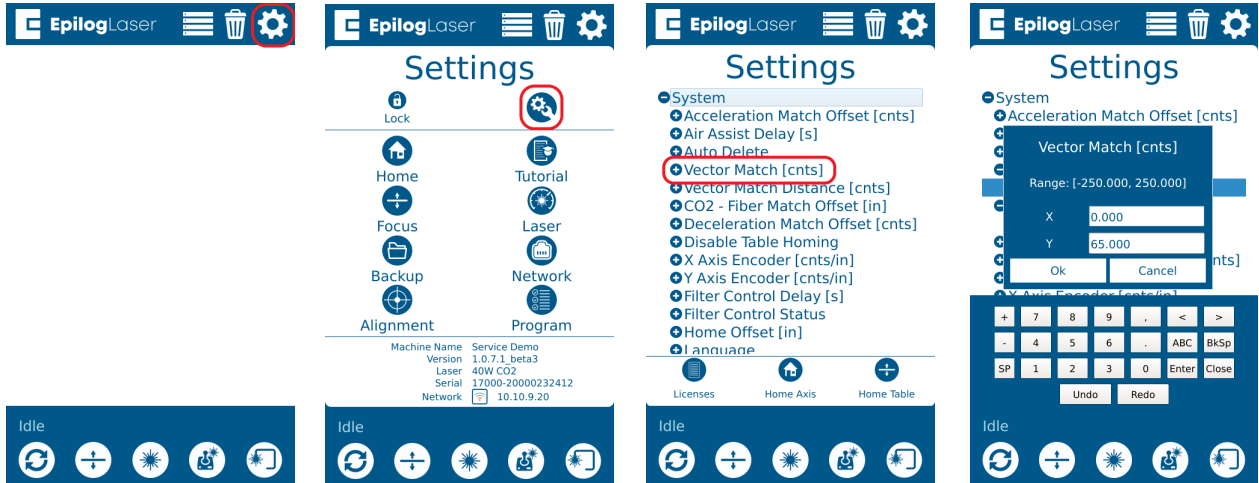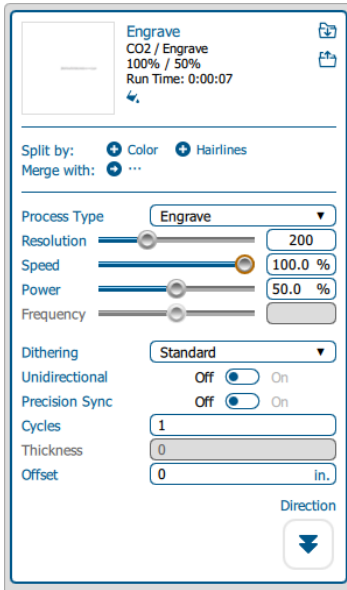

2. Navigate to Vector Match Distance [cnts] in the system settings, ensure that the X Vector Match Distance [cnts] value is still set to 8,000, and press OK. If not, change the value to 8,000:

   - You do not need to adjust the Y-Axis value as it has been accurately calibrated.
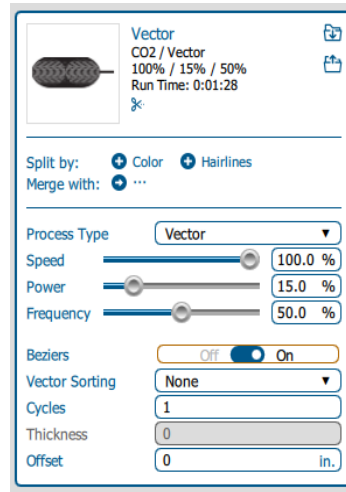
3. Send the X_Vector_Match_Calibration file (link above in the materials needed) to the Epilog Dashboard. If the file is not imported into the Laser Dashboard with two processes (numbers engrave, circles vector), then click Split by Hairlines. Anodized aluminum is suggested as the best material for adjusting these settings. In the Epilog Dashboard, assign the following process settings to the job. If a setting is not listed below, it does not need to be changed:
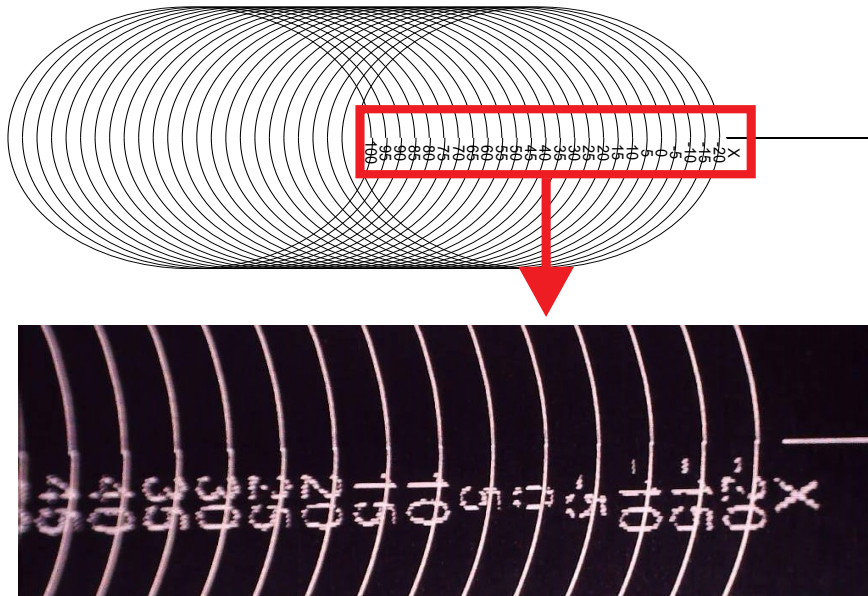

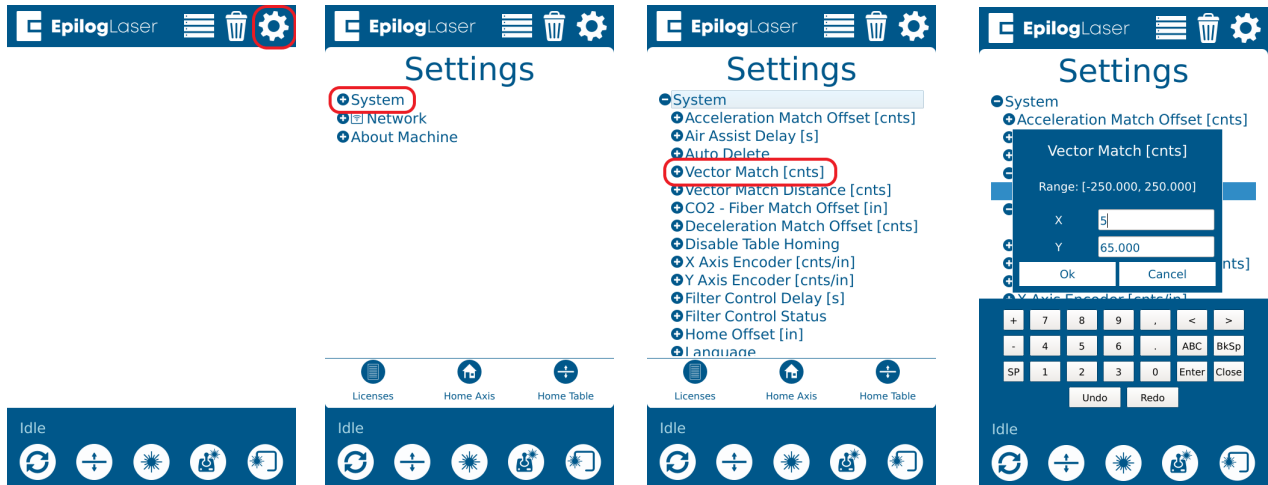Resolution: 200
Speed: 100
Power: 50

Speed: 100
Power: 15
Beziers: On
Vector Sorting: Off

4. Print the X_Vector_Match_Calibration file to the engraver and run the job.

5. Remove the material from the engraver and inspect the ovals to find the oval with a number value where the origin and termination points match:

6. Navigate to the Vector Match [cnts] setting and enter the value that corresponds to the oval where the origin and termination points match and press In this example, the ovals 0 and 5 look good. We will use 5 as the X-Axis Vector Match setting:
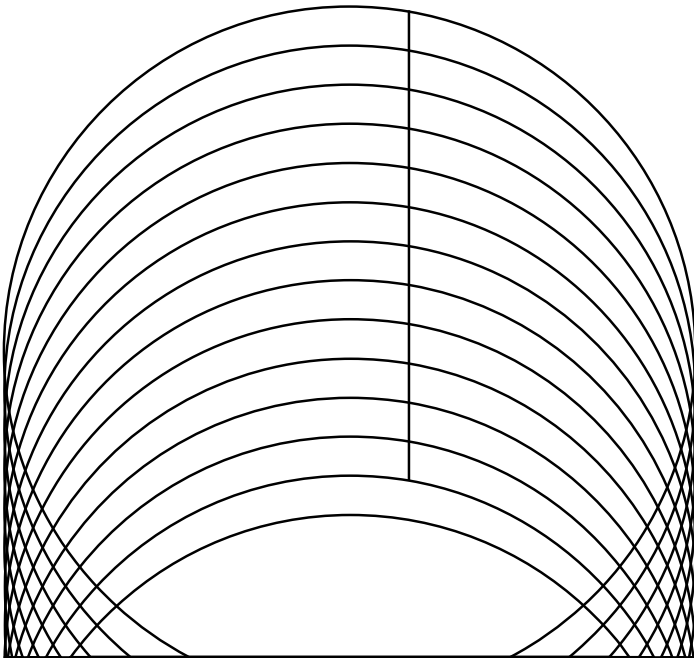
Vector Match Distance Adjustment for X-Axis

1. Send the X_Vector_Match_Distance_Verify file (link above in the materials needed) to the Epilog Dashboard. Anodized aluminum is suggested as the best material for adjusting these settings. In the Epilog Dashboard, assign the following process settings to the job. If a setting is not listed below, it does not need to be changed:
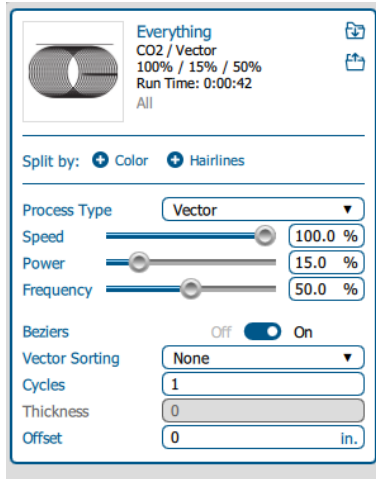

Speed: 100
Power: 15
Beziers: On
Vector Sorting: Off

2. Print the X_Vector_Match_Distance_Verify file to the engraver and run the job.

3. Remove the material from the engraver and inspect the origin and termination point of the circles. If the origin and termination points of the circles match, no adjustment is needed and you may calibrate the X-Axis Vector Match settings. If there are a significant number of circles that do not match, the Vector Match Distance will need to be adjusted.
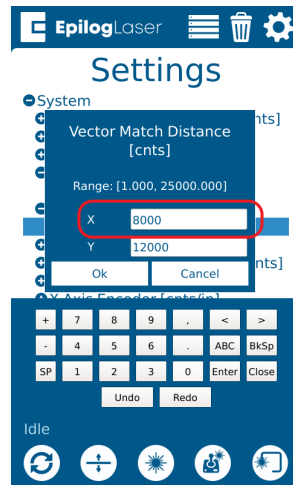

Good distance calibration,
origin and termination points
match up
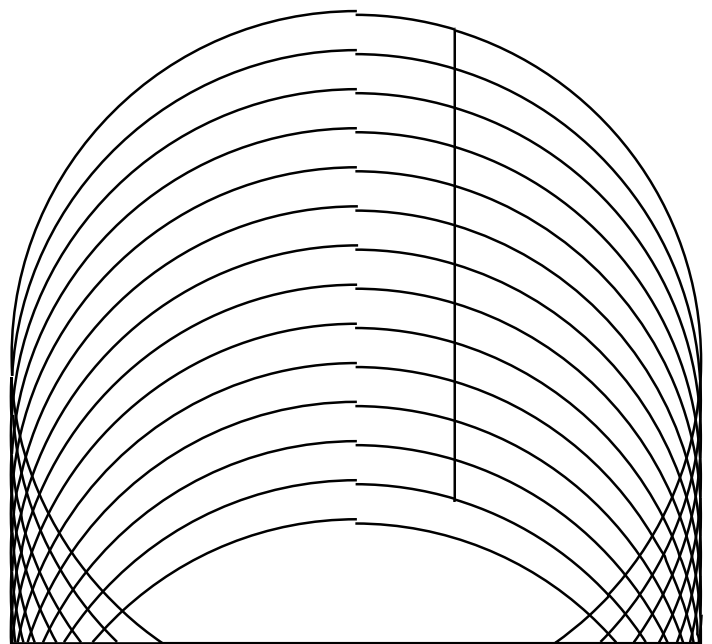
Poor distance calibration,
origin and termination points
do not match up

VECTOR MATCH ADJUSTMENT

4. Navigate to Vector Match Distance [cnts] and adjust the X-Axis Vector Match Distance, as described below :

- · If the right side of the circle is lower than the left, the distance setting is too high- subtract 1,000 from the current value.

- · If the right side is higher than the left, the distance setting is too low- add 1,000 to the current value.

- · Round the value to the nearest 1,000.

5. Move the artwork to the right using the XY coordinate positioning feature in the Epilog Dashboard, resend, and run the X_Vector_Match_Distance_Verify file again.

   - Move the artwork enough so the next mark will not coincide with the previous mark to allow for easier observation of the adjustment.

6. Repeat steps 2-4 of this procedure until the origin and termination points of the circles match.

7. If the Min Power Comp [%] value was adjusted in step 4 of the Vector Match Adjustment Procedure for Y-Axis, re-enter the original value.

If further assistance in required, please contact Epilog Tech Support by phone at 303-215-9171, or by email at tech@epiloglaser.com