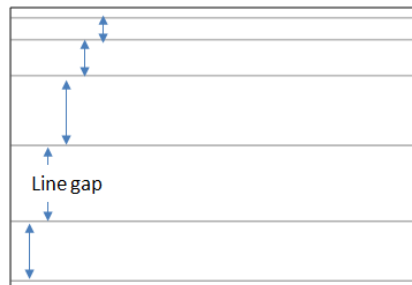


# Output Format for Laser Engraved

## 1 Line Output



1.1 **Concept:** Based on density of the horizontal area to calculate the gap distance between lines.

### 1.2 Setting:

#### 1.2.1 General:

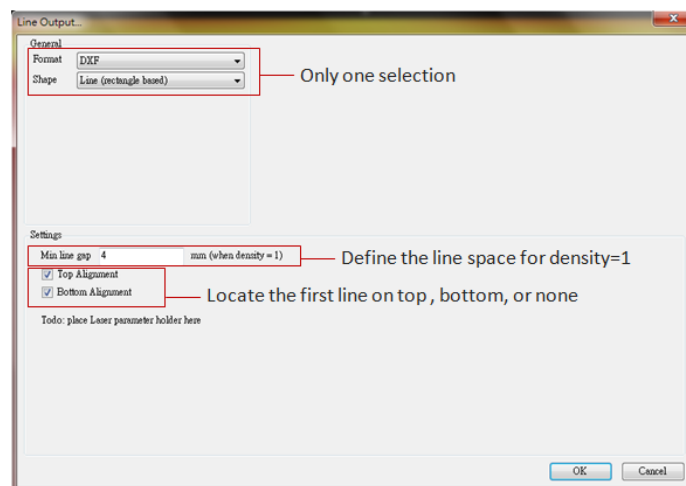
1.2.1.1 **Format:** DXF only.

1.2.1.2 **Shape:** Line (rectangle based) only.

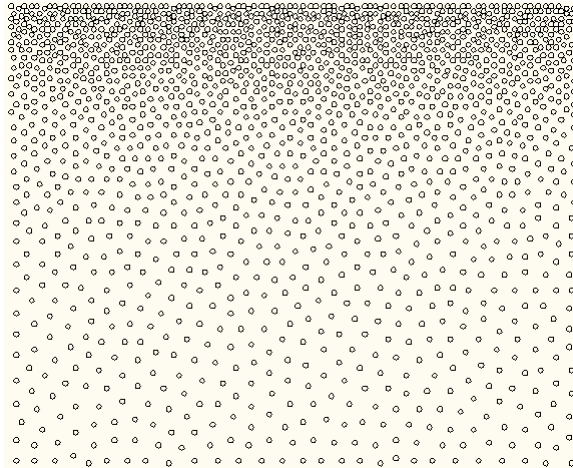
#### 1.2.2 Settings:

1.2.2.1 Define minimum line gap for the density=1.

1.2.2.2 **Top/Bottom Alignment:** If check the mark, the first/last line will be moved to locate at the top/bottom (0mm from top/bottom), and other lines will be re-calculated again.



## 2 Same Size Output - Rasterization3



2.1 **Concept:** For Laser engraved application, output as **DXF** file was newly created. Only need to define the pitch additionally and the design can be manufactured by engraved.

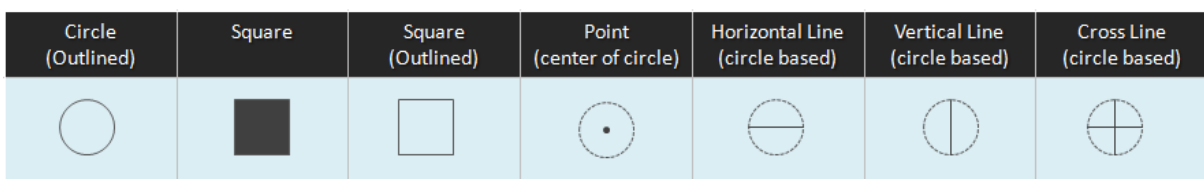
### 2.2 Setting

#### 2.2.1 General

For rectangle based: default value = 1  
For circle based: default value = 0.7854  
Adjustment for output

2.2.1.1 **Format:** Tiff, DXF, Standard Laser, Standard Laser with origin offset

2.2.1.2 **Shape:**



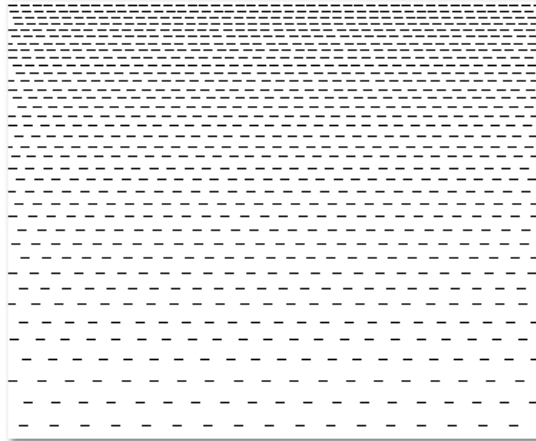
2.2.1.3 **Shape area factor:** Generally, 1 for square, and 0.7854 for circle.

2.2.1.4 Adjustment of output: Detail adjustment items for outputting well

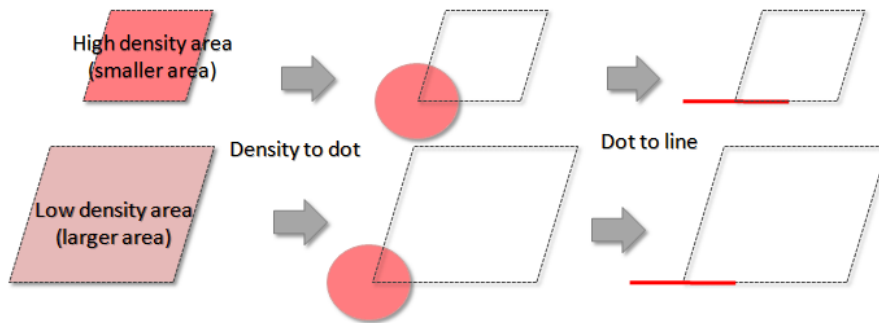
#### 2.2.2 Settings

- 2.2.2.1 Define **shape size**
- 2.2.2.2 **Regressive Count:** Calculating loop times for dot distribution option.
- 2.2.2.3 **Resolution:** Factor for optimum dot distribution quality; more is better but slower is faster.
- 2.2.2.4 **Enable border enhancement:** check to re-calculate the dot distribution for boundary area.
- 2.2.2.5 **Enable X/Y virtualization:** Custom item. **DO NOT** check it.
- 2.2.2.6 **Enable custom pitch:** For engraving application, check this function and define X and Y pitches. **Notice**, if the pitch distance is shorter than shape size, the dots may overlap in high density area. Moreover, if the pitch distance is shorter than shape size and is not the factor of shape size, the frequency of dot overlap will also become higher.
- 2.2.2.7 **DPI info:** Based on pitch setting, that will be converted to DPI of image.
- 2.2.2.8 **Enable Custom DPI:** Forced DPI for some tools.

### 3 Same Size Output - Laser Engraved

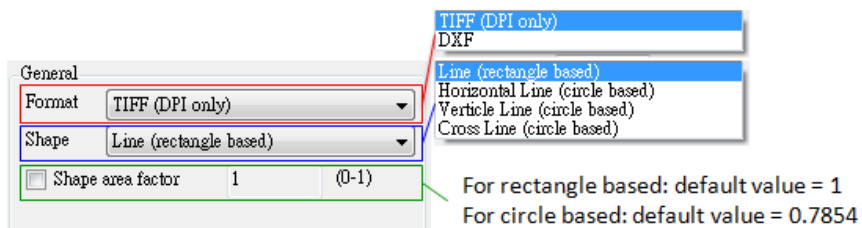


3.1 **Concept:** All outputted lines are the same but with various gaps between lines. The line gaps are according to density.



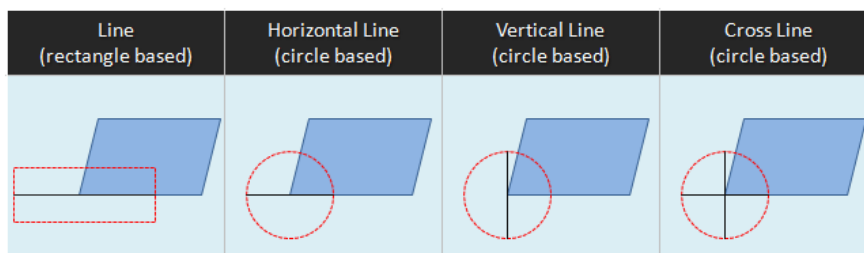
### 3.2 Setting:

#### 3.2.1 General:



3.2.1.1 **Format:** There are TIFF and DXF for selection.

3.2.1.2 **Shape:** There are 4 types.



3.2.1.3 **Shape area factor (0-1):** Dot size = shape size x Shape area factor.

3.2.2 **Image DPI setting:** Only for TIFF format to decide the resolution. The numbers mean the pixel per inch.

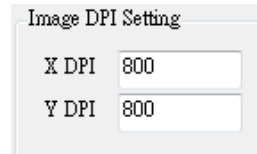


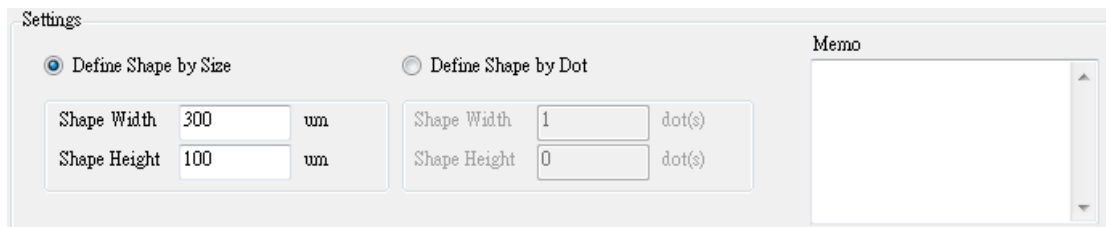
Image DPI Setting

X DPI	800
Y DPI	800

3.2.3 **Settings:** Define the size for shape

3.2.3.1 **For TIFF format:** The shape can be defined by setting length of Width/Height or setting how many dot (pixel) numbers for a shape. Only one setting can be modified at one time, but the other setting will be also revised based on your modification. The final output will be exhibited by dot setting.

3.2.3.1.1 **For rectangle based:** need to set for both width and height.



Settings

Define Shape by Size       Define Shape by Dot

Shape Width	300	um	Shape Width	1	dot(s)
Shape Height	100	um	Shape Height	0	dot(s)

Memo

3.2.3.1.2 **For circle based:** only need to set width (diameter of circle)



Settings

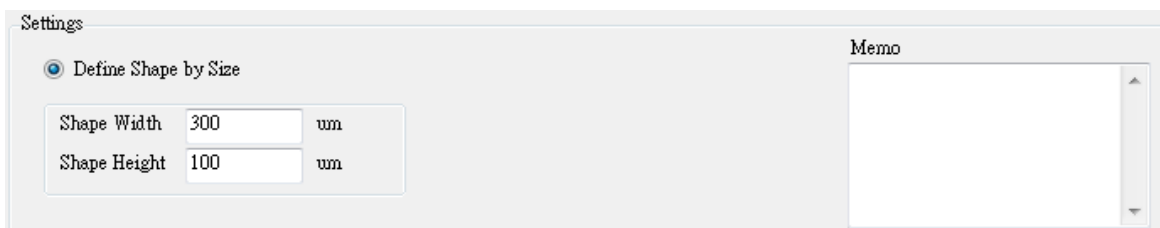
Define Shape by Size       Define Shape by Dot

Shape Width	300	um	Shape Width	1	dot(s)
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Memo

3.2.3.2 **For DXF format:** The shape size is decided by defining the lengths of width and height.

3.2.3.2.1 **For rectangle based:** need to set for both width and height.



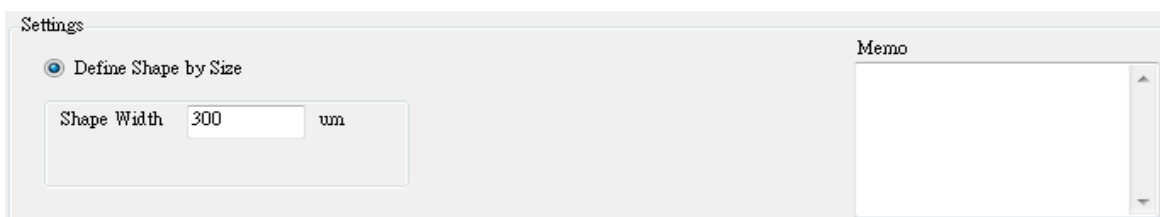
Settings

Define Shape by Size

Shape Width	300	um
Shape Height	100	um

Memo

3.2.3.2.2 **For circle based:** only need to set width (diameter of circle)



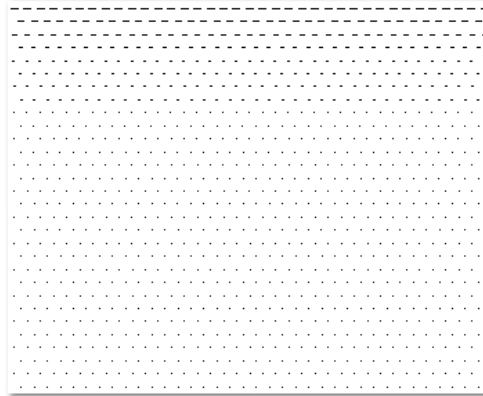
Settings

Define Shape by Size

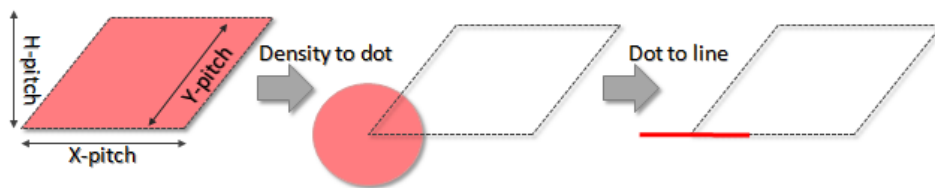
Shape Width	300	um
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Memo

#### 4 Same Pitch Output - Laser Engraved



4.1 **Concept:** Pick up an area with specific size, you defined, and convert the density to a dot. The line length for output is based on the diameter of that dot.

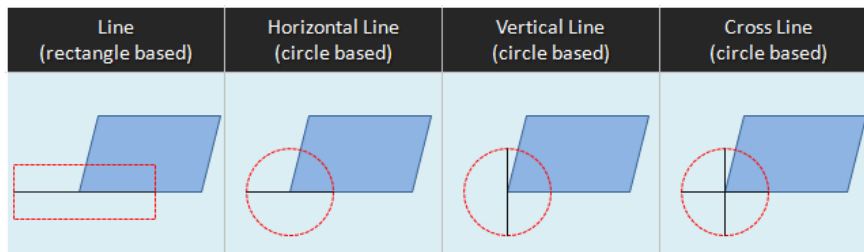


4.2 **Setting:**

4.2.1 **General:**

4.2.1.1 **Format:** The format of output. There are TIFF and DXF.

4.2.1.2 **Shape:** That affects the calculating mode for line length.



4.2.2 **Shape area factor (0-1):** Dot size = shape size x Shape area factor.

4.3 **Image DPI setting:** Only for TIFF format to decide the resolution. The numbers mean the pixels per inch.

Image DPI Setting

X DPI

Y DPI

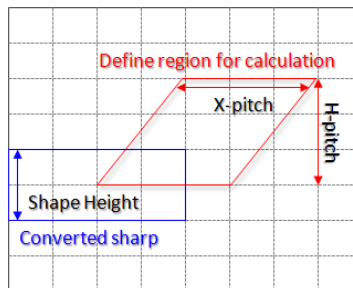
4.3.1 **Settings:**

4.3.1.1 **For TIFF format:** The shape can be defined by setting length of Width/Height or setting how many dot (pixel) numbers for a shape. Only one setting can be modified at one time, but the other setting will also revised based on your modification (size to dot by rounded off). In "Define Shape by Size", the error, due to rounding off, will be responded in a few pitches of output result.

4.3.1.1.1 **For rectangle based:** Need to define the X- and H-pitch for a specific area.

The density in specific area will be converted to a rectangle. The **Shape Height** is to set the height of that rectangle, and the width of that rectangle will be varied according to density.

The screenshot shows the 'Settings' dialog box with the 'Define Shape by Size' radio button selected. It contains three input fields: 'X Pitch' with a value of 300 and unit 'um', 'H Pitch' with a value of 300 and unit 'um', and 'Shape Height' with a value of 300 and unit 'um'. To the right, there is a 'Memo' field which is currently empty.



4.3.1.1.2 **For circle based:** Only need to define the X- and H-pitch for a specific area. The density in that specific area will be converted to a circle, and the diameter of the circle will be different based on density.

The screenshot shows the 'Settings' dialog box with the 'Define Shape by Size' radio button selected. It contains two input fields: 'X Pitch' with a value of 300 and unit 'um', and 'H Pitch' with a value of 300 and unit 'um'. To the right, there is a 'Memo' field which is currently empty.

4.3.1.2 **For DXF format:** The shape size is decided by defining the lengths of width/height.

4.3.1.2.1 **For rectangle based:** Need to define the X- and H-pitch for a specific area.

The density in specific area will be converted to a rectangle. The **Shape Height** is to set the height of that rectangle, and the width of that rectangle is varied according to density.

The screenshot shows the 'Settings' dialog box with the 'Define Shape by Size' radio button selected. It contains three input fields: 'X Pitch' with a value of 300 and unit 'um', 'H Pitch' with a value of 300 and unit 'um', and 'Shape Height' with a value of 300 and unit 'um'. To the right, there is a 'Memo' field which is currently empty.

4.3.1.2.2 **For circle based:** Only need to define the X- and H-pitch for a specific area. The different density in that specific area will be converted to the circles with different diameter.

Settings

Define Shape by Size

X Pitch	<input type="text" value="300"/>	um
H Pitch	<input type="text" value="300"/>	um

Memo