

2-2 Specifications for the Upper Die

Prepare a flexible die. Place an order with the following specifications from a specialized supplier.

In case of the plate thickness is 0.8mm / 0.0315"

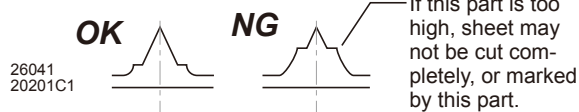
Plate Thickness	0.8 mm / 0.0315"	
Height of Cutting Blade	0.65 mm / 0.0256"	
Base Thickness	0.15 mm / 0.0059"	
Height of Creasing Blade	See page 67.	
Material Thickness	Max. 0.5 mm / 0.02"	

In case of the plate thickness is 0.6mm / 0.0236"

Plate Thickness	0.6 mm / 0.0236"	
Height of Cutting Blade	0.45 mm / 0.0177"	
Base Thickness	0.15 mm / 0.0059"	
Material Thickness	0.3 mm / 0.012"	

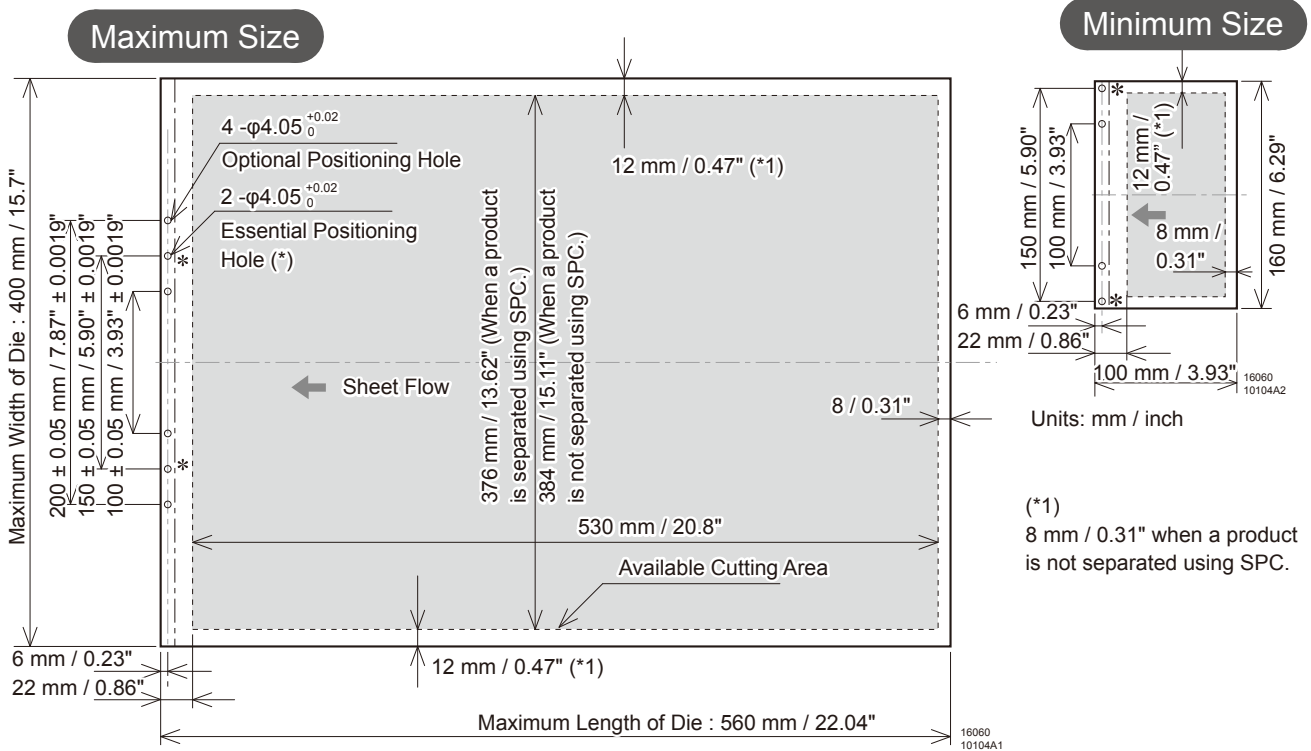


Important



Common Specifications

	Die Size	Max. 400 (W) x 560 (L) mm / 15.74 x 22.04"
	Length	Min. 160 (W) x 100 (L) mm / 6.30" x 3.94"
	Width	
	Holes for Positioning Pins	See next page.
	Reduction Percentage	99.4 %



- Both essential positioning holes (marked * above) are necessary for any size of die. Insert the pins on the upper roller into these holes to secure the upper die.
- Also add at least two of the four optional holes. Insert the two positioning pins into these holes when attaching the upper die.
- Design the shape of the cut product within the area shown in gray in the drawing above. Allow at least 8 mm / 0.314" margins at the top, bottom, and the left end.
- Allow at least a 22 mm / 0.866" margin at the right end. If you make this margin longer, the available cutting area will become shorter.
- The minimum size for the cut product is 50 mm (W) x 80 mm (L) / 1.968" x 3.149" when using the separator.
- As the upper die rolled on the cylinder cut the sheet, the image on the diagram should be reduced in the sheet transporting direction with the 99.4% (reduction ratio). See page 70 for die diagrams.

[Reference Data]

Magnet Cylinder	Diameter of magnet φ 183.38	Anvil Roller	Diameter of anvil φ 184.58
	Diameter of bearer φ 184.78		Diameter of bearer φ 184.78

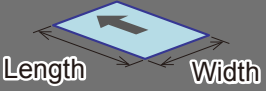


NOTE

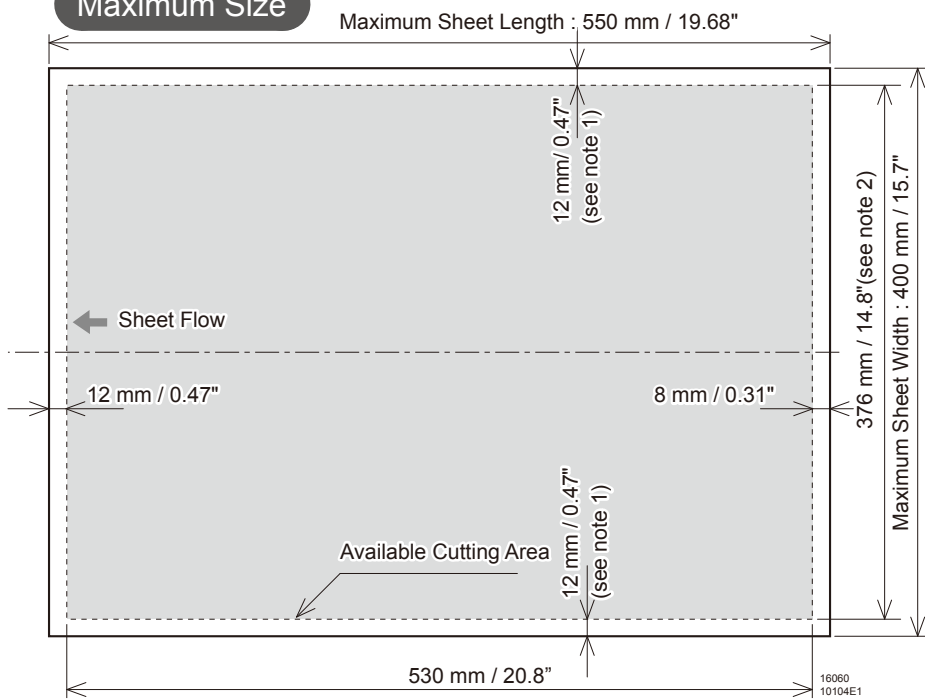
The lifetime of upper die will vary depending on the quality of the sheets and the cutting shape. The blade on the die may be damaged if the machine is operated incorrectly. Keep a spare die if you will not have enough time to make a new one.

Printing

The printing should meet the following specifications:

Sheet Size (Before processing) 	Max. 400 (W) x 550 (L) mm / 15.74" x 21.65"
	Min. 200 (W) x 275 (L) mm / 7.88" x 10.83"
Available Material	Normal paper, Coated paper, Cardboard
Material Thickness	127.9 to 400 gsm
	Die cutting: Max. 0.5 mm / 0.019" (In case of blade height: 0.8 mm / 0.031") Max. 0.3 mm / 0.001" (In case of blade height: 0.6 mm / 0.023")
	Creasing: Max. 0.4 mm / 0.015" (In case of blade height: 0.8 mm / 0.031")

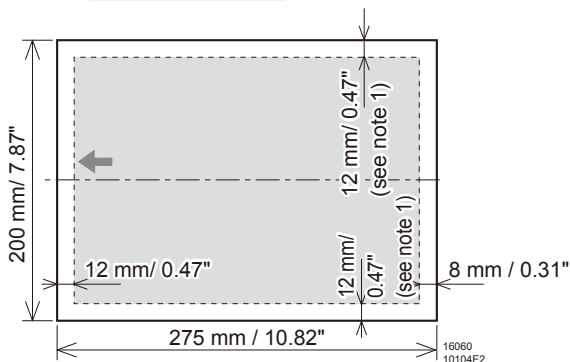
Maximum Size



Note 1: 8 mm / 0.31" when a product is not separated using SPC.
 Note 2: 384 mm / 15.1" when a product is not separated using SPC.

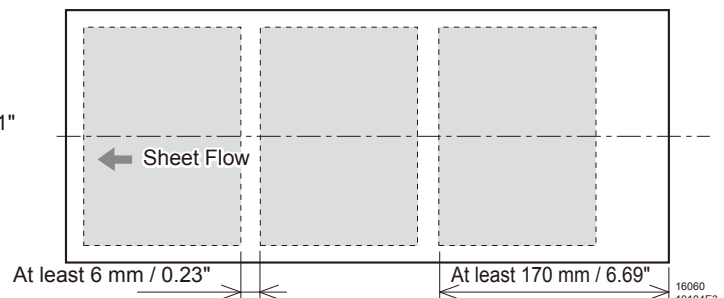
Units: mm / inch

Minimum Size



Limits for Repeat Die Cutting

The necessary gripping width is 170 mm / 6.69" or more. Allow at least 6 mm / 0.23" of space between the cut patterns. If possible, allow more than 8mm / 0.31" of space.



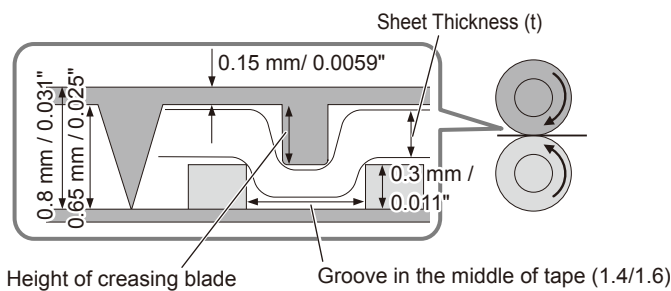
These limits are not applied if you enter the die size using the Setting screen. (See page 97 for details.)

Height of Creasing Blade

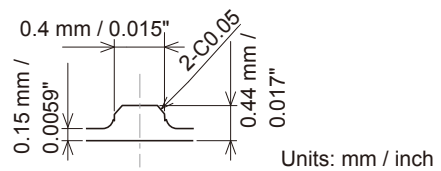
A creasing blade is not as high as a cutting blade. The proper height of the creasing blade depends on the sheet thickness (t) and softness.

Plate Thickness	Height of Creasing Blade	
	Soft Sheet	Hard Sheet
0.8 mm / 0.0315"	$0.8 - (t \times 0.8)$ or $0.0315" - (t \times 0.8)$	$0.8 - (t \times 0.9)$ or $0.0315" - (t \times 0.9)$
	e.g. When the sheet thickness is 0.4 mm or 0.0157" $0.8 - (0.4 \times 0.8) = 0.48$ mm or $0.0315" - (0.0157" \times 0.8) = 0.0189"$	e.g. When the sheet thickness is 0.4 mm or 0.0157" $0.8 - (0.4 \times 0.9) = 0.44$ mm or $0.0315" - (0.0157" \times 0.9) = 0.0174"$

Depending on the type of printing, the printed material may crack during creasing. If this happens, use a lower creasing blade.

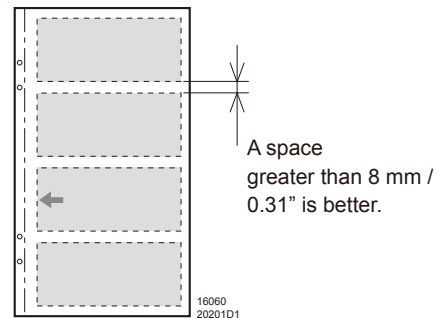


Section View of the Creasing Blade



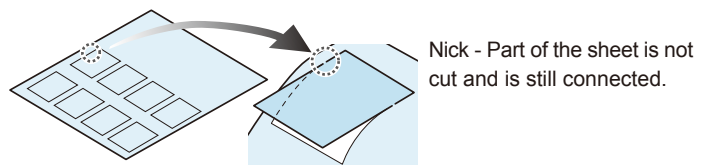
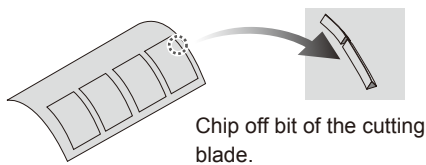
Distance Between Repeated the Same Patterns

If you will use the separator machine and separate the patterns that are cut using one die, the space between the patterns should be at least 6 mm / 0.23". A space of 8 mm / 0.31" is better.



Nick Positions

It is necessary to make nicks on the blade of the upper die so the cut product will not drop during cutting.



Important

The appropriate positions of the nicks depend on the product pattern, sheet quality, and the size of the waste material. Once the upper die is made, the nicks cannot be removed.

Important

If you will not be using the separator, be sure to place the nicks evenly. If the nicks are not placed evenly, pieces of cut product may catch each other and the sheets may not be delivered correctly.

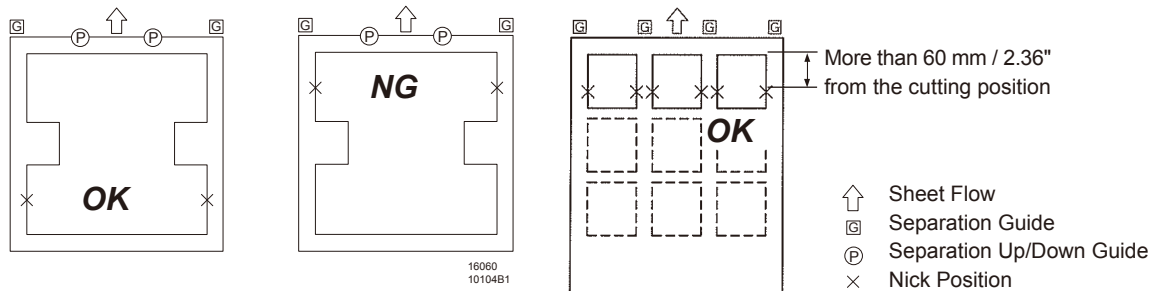


Additional Information

A nick can be added by grinding out a short section of the blade on the die using the optional hand router or nick punch.

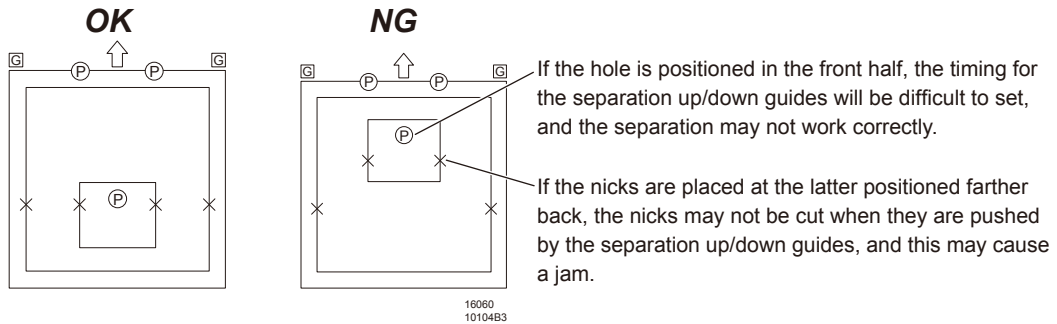
Nick Positions When Using the Separator

- Make the nicks around the tail of the cut product.



If the nicks are placed around the top or within 60 mm / 2.36" of the cutting position, the cut pieces may be difficult to separate and cause jams.

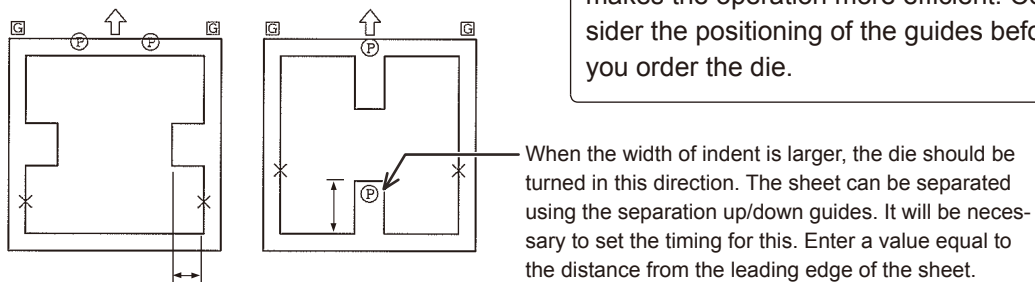
- If the cut piece includes a hole, position the hole in the rear half of the cut piece and make the nicks on the front half of the hole.



Imposition When Using the Separator

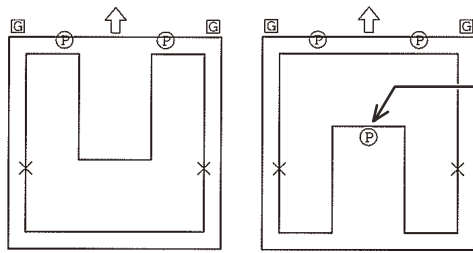
The cut pieces are easily separated by considering the imposition. See the following example:

NOTE
 Less use of the separation up/down guides reduces the time required for setup and makes the operation more efficient. Consider the positioning of the guides before you order the die.

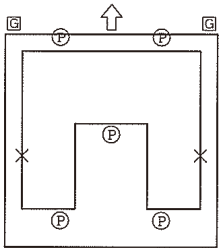


If the width of the indent is narrow, separation is possible if the sheets move in this direction.

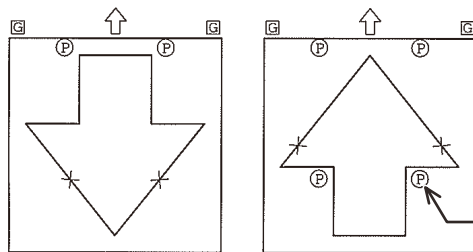
When the width of indent is larger, the die should be turned in this direction. The sheet can be separated using the separation up/down guides. It will be necessary to set the timing for this. Enter a value equal to the distance from the leading edge of the sheet.



If the indent faces in this direction, push it using the separation up/down guides. It will be necessary to set the timing for this. Enter a value equal to the distance from the leading edge of the sheet.

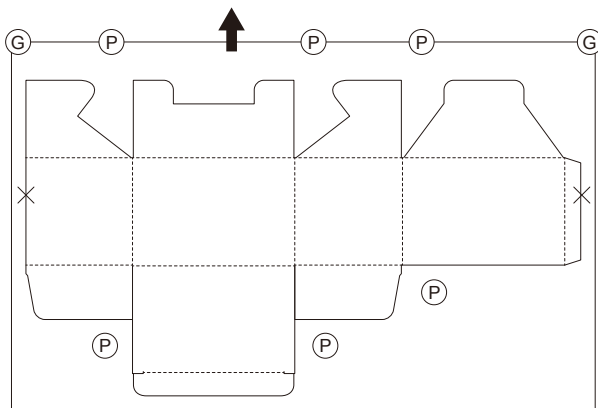
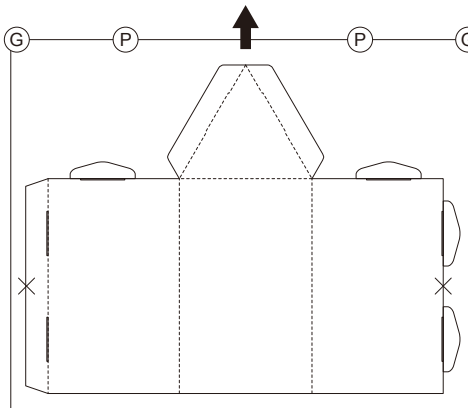
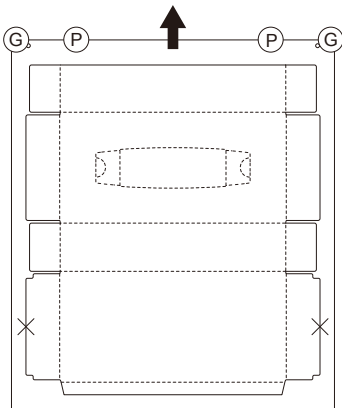


If the margin at the tail is wide, it will need to be pushed by the separation up/down guides.



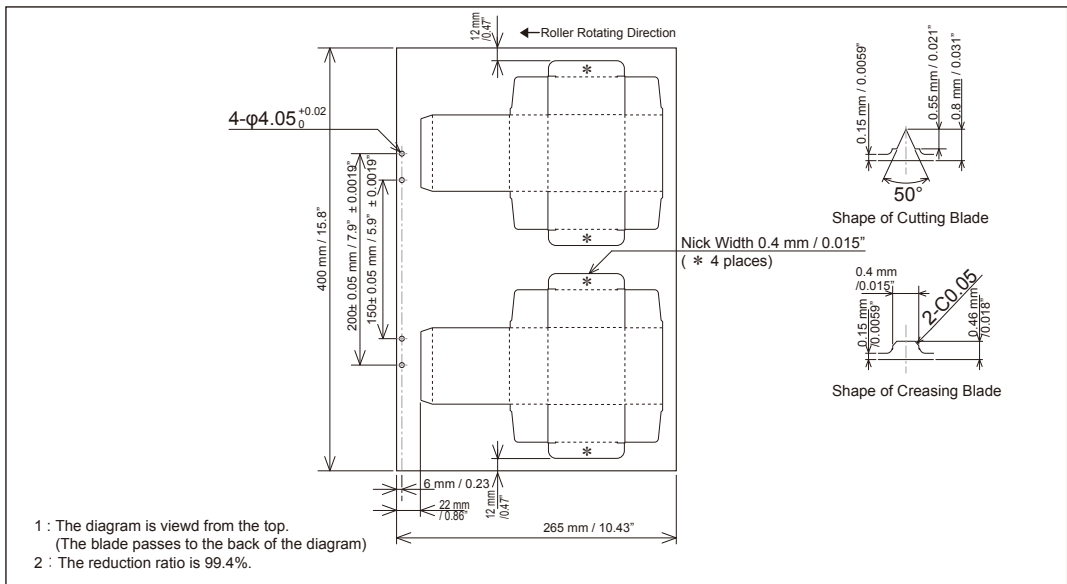
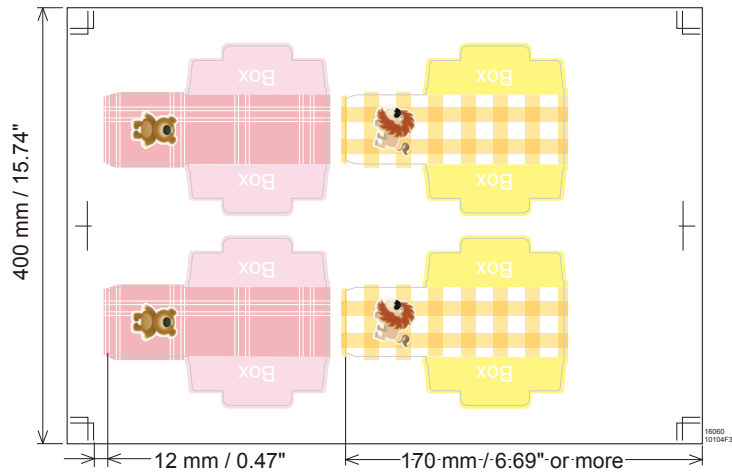
If a corner faces in this direction, push the waste material here using a separation up/down guide. It will be necessary to set the timing for this. Enter a value equal to the distance from the leading edge of the sheet.

• Examples of cut product:

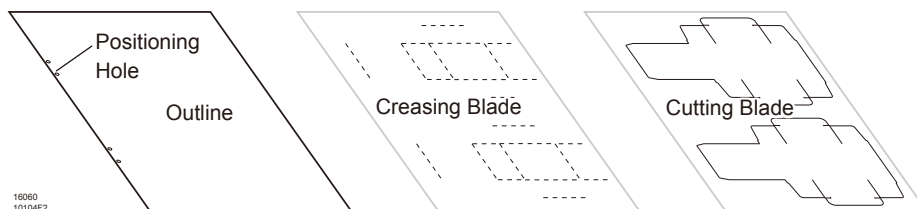


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Examples of Printing and Die Diagrams

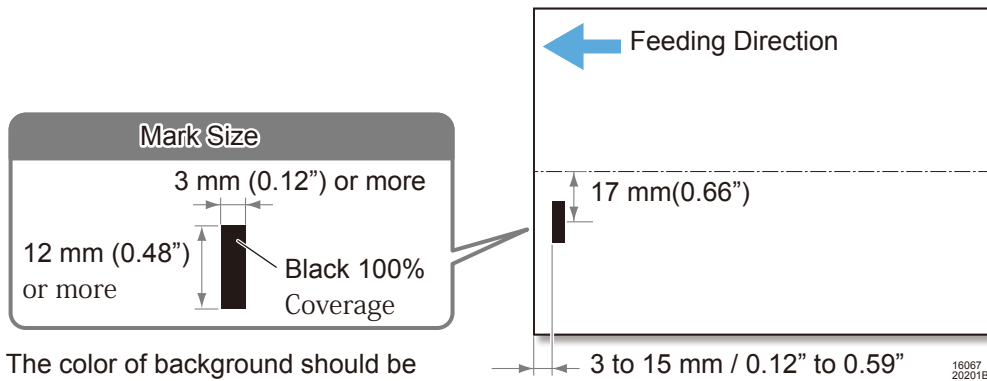


- Ask the specialized supplier about the data required.
- Draw the shape of the die as viewed from the top. (The blade will move toward to the back of the diagram)
A note on the diagram should say that “the shape is viewed from the top.” and “the reduction ratio is 99.4%.”
- Create separate layers for cutting blade, creasing blade, and the outline of the sheet (including the positioning holes).



- If there are different heights of blades, create different layers for these.
- A note on the diagram should show the roller rotating direction.

Mark Specification of the Mark Sensor (Option)



The color of background should be as close to white as possible.