

Dividing a sheet into four

Information:

- How to program the cutting of sheets into four parts
- How to use the lay guide
- Fundamental functions of cutting machine programming

Benefit:

- Faster operation of the cutting machine
- Improved production quality

Cutting the sheets into four may be necessary before the printing process, if the paper size required for printing is smaller than the existing paper format, but printed sheets are also cut into four. While the lay side is not decisive when processing unprinted sheets it is a major factor for the cutting quality when you deal with printed material.

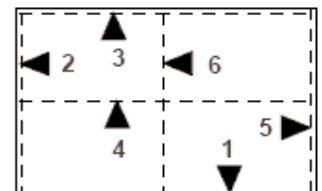
Cutting the sheets into four sections is essentially the same procedure as cutting them in two. As a general rule, you should carry out a square cut before trimming the material to the relevant format. A four-side trim improves the quality considerably. In order to reduce the lateral pressure exerted to the knife when the sheets are halved, large-size sheets should be aligned on the left. If you are cutting very slippery material or small sizes, an alignment on the right may be of advantage, because the trimmed product will be supported by the right-hand side gauge in this case. In our example, we proceed from unprinted material and describe the cutting with an alignment against the right-hand side.

Make sure to adjust the proper clamping pressure before starting the program.

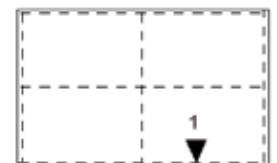
Program example: Four-sided trimming and cutting into four (long strips)




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35.000
R: JOGGING MARK
69.500
R: TURN 90° TO THE LEFT
99.500
R: TURN 90° TO THE LEFT
69.000
34.500
R: TURN 90° TO THE LEFT
99.000
49.500
PE 30.000
    
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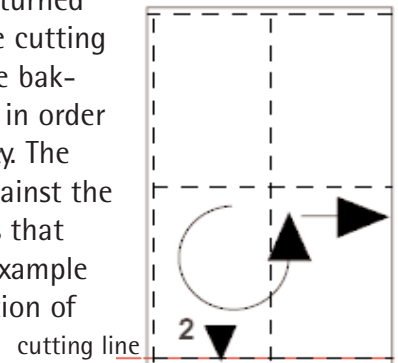


The first cut should be made on the longer side, even with unprinted paper. This makes a proper alignment for the first cut much easier and, owing to the straight cut, also facilitates the positioning for the second cut. In our example, the first cut is carried out at a position of 69.500 cm.

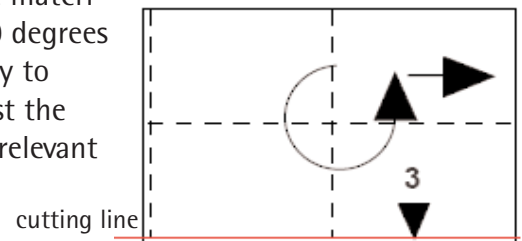


-  Jogging mark
-  Complete air table on
-  Complete air table off

After the first cut, the material is turned 90 degrees, until you can align the cutting surface against the side gauge. The backgauge is only used as a lay guide in order to ensure the dimensional accuracy. The material is primarily positioned against the side gauge. This procedure ensures that the paper will be angular. In our example the relevant cut is made at a position of 99.500 cm.

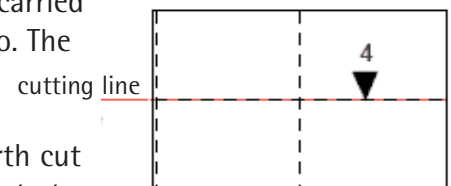


After the second cut the material being cut is turned 90 degrees once again. It is now easy to align the material against the backgauge, because the relevant edge was already cut. In our example, the third cut is made at a position of 69,000 cm.

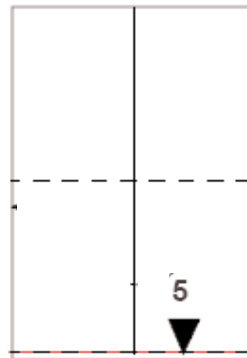
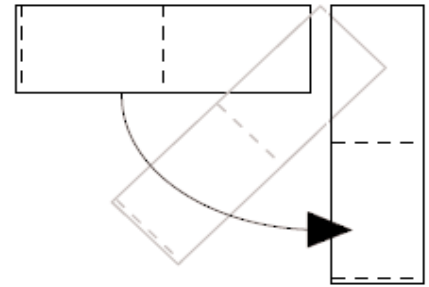


The measurement of 69.000 cm has been complemented by the programmed feature "Air supply for entire table ON". If the backgauge moves to a bigger measurement, the table air supply is automatically switched off. In this case, the backgauge is moving forward and the material is turned. For this reason, the table air supply is programmed.

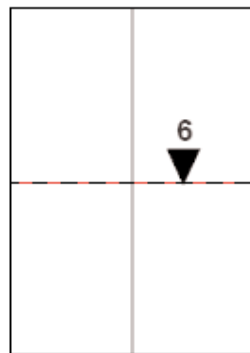
After the third cut has been carried out, the material is cut in two. The backgauge moves the paper to the programmed position. In our example, the fourth cut is made after a brief alignment at a position of 34.500 cm.



Both sheet sections are turned and re-aligned against the side gauge. The retable air supply, that was automatically switched on, may cause the upper sheets to slip away. In order to prevent this, we have added the feature "Air supply for entire table OFF" to the measurement 99.000 cm in our program example.



After the material has been turned, the fifth cut is made at a position of 99.000 cm. The material is now trimmed on all four sides.





The backgauge moves the two sheet sections to the last cutting position. In our example: 49.000 cm. After a short alignment the sixth cut is made. We have now cut all the four sheet sections.

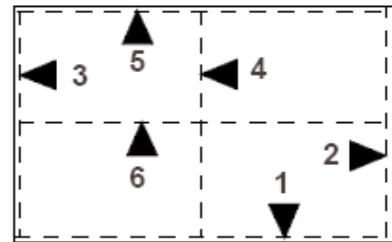
In order to ensure a convenient delivery of the material, the "programmable ejector" function was added as the last step of the program.

In our first example, the sheet was cut into long strips first of all. Sometimes it is more convenient to work with short strips. The relevant program is as follows:

Make sure to adjust the proper clamping pressure before starting the program.

Program example: Four-sided trimming and cutting into four (short strips)

45.000 
 R: JOGGING MARK
 69.500
 R: 90° TURN TO THE RIGHT
 99.500
 R:TURN 180°
 99.000 
 49.500
 R: TURN 90° TO THE LEFT
 69.000
 34.500






The main difference to the first example: the material being cut is turned 180° after the second cut, and then cut into strips.

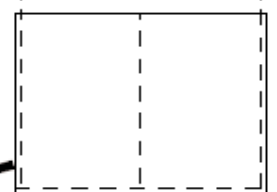
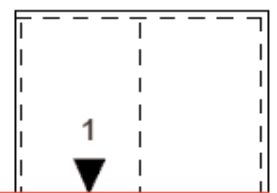
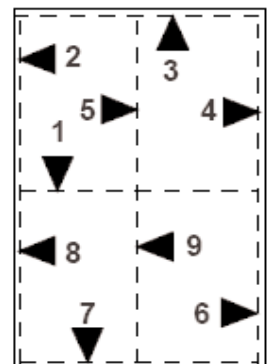
You can avoid the 180° turn by starting with the short sides, but you have to accept a certain quality impairment regarding the angularity.

If you only have a small cutting machine at your disposal, the large sheets must be halved first of all. After that, both sheet sections are trimmed on all four sides, before they are halved again.

Make sure to adjust the proper clamping pressure before starting the program.

Program example: Four-sided trimming and cutting into four (put material aside)

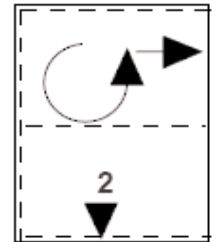
45.000 
 R: JOGGING MARK
 50.000
 R: PUT PART OF MATERIAL AWAY
 R: TURN 90° TO THE LEFT
 69.500
 R: TURN 90° TO THE LEFT
 49.500 
 R: TURN 90° TO THE LEFT
 69.000
 34.500
 R: PUT PART OF MATERIAL AWAY
 R: 90° TURN TO THE RIGHT
 69.500
 R: TURN 90° TO THE LEFT
 49.500 
 R: TURN 90° TO THE LEFT
 69.000
 34.500
 PE 30.000



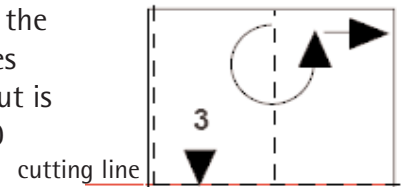
The first cut serves only to halve the sheets. After this cut, the material located in front of the knife is aligned and put aside.

put aside

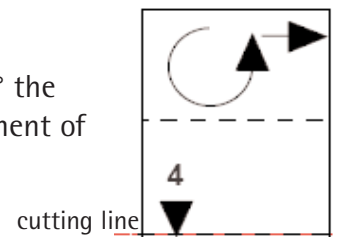
The material remaining in the machine is turned 90° and aligned against the side gauge with its trimmed section. The second cut is carried out at a position of 69.500 cm.



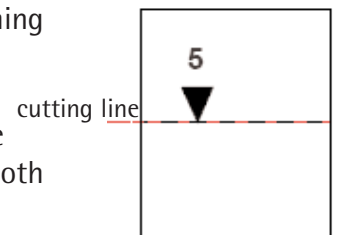
After the second cut the material is turned 90°. It is now easy to align the material, because the relevant sides have already been cut. The third cut is made at a measurement of 49.500 cm.



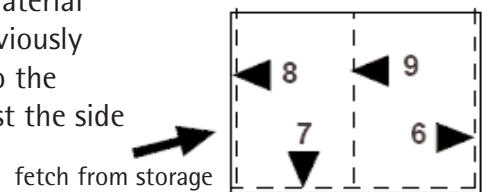
After turning the material again by 90° the fourth cut is carried out at a measurement of 69.000 cm.



The next cut is performed without turning the material. The backgauge takes the material to a programmed position of 34.500 cm. After a short alignment the material is cut in two and afterwards both products are unloaded.



Once the first half of the material has been unloaded, the previously stored part is again fed into the machine and aligned against the side gauge with the trimmed side. The subsequent cutting sequence is the same as before. The first cut is made at 69.500 cm.



POLAR cutting machines* offer:

- Programming devices for the daily work
- Process visualization for convenient operation
- Auxiliary functions which help to reduce production costs
- Machine functions that provide for ergonomic working

*Please compare the technical data relevant for the individual machine models