

Matching

The matching process starts by identifying key locations on the piece to match and defining the match strategy. The whole work flow of creating matched markers will be discussed, from assigning the line labels or points to plotting and cutting the finished marker.

By the end of this lesson, you will be able to:

- Create matching lines.
- Create matching rules for point matching.
- Set a repeat for matching.
- Plot and cut matched markers.

Overview of Matching

AccuMark provides options that can be used to match pattern pieces to fabrics with stripes, plaids or motifs. Lines are defined on pattern pieces to indicate the matching locations. The label applied to the line determines the type of matching – piece-to-piece or piece-to-fabric.

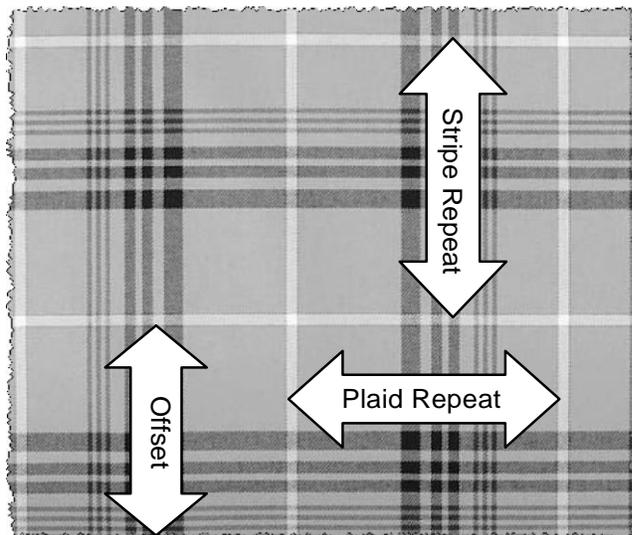


The Basics of Matching Patterns

Matching a fabric pattern between pattern pieces can be as simple as matching a pocket to a stripe pattern on a shirt or as complex as matching all the pieces that make up sofa cushions to line up a plaid. First, we will look at some of the terminology that will be used in setting up pieces and placing matched markers.

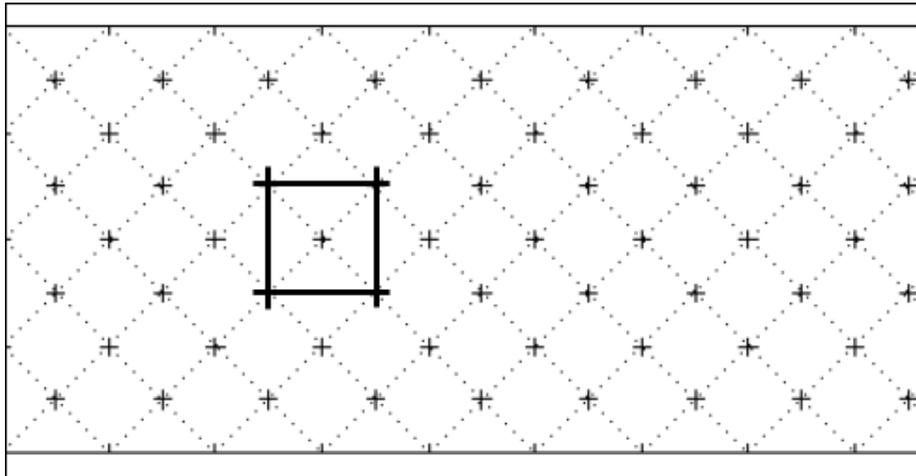
Matching Definitions Related to the Fabric:

- **Stripe Repeat** – fabric designs that occur at regular intervals along the length of the fabric.
- **Plaid Repeat** – fabric designs that occur at regular intervals across the width of the fabric, from selvedge to selvedge.
- **Offset** – the distance from the selvedge or another fabric design to the repeating design element.



Matching Definitions Related to the Marker:

- **Grid** – lines that represent the repeat of a fabric applied to the marker area as a guide for matching pieces. How the grid displays depends on the matching type used for the marker.
- **Standard Matching** – type of matching where matching locations are determined relative to horizontal (stripe) and vertical (plaid) lines on the grid lines. There can be up to three stripe and three plaid matching locations defined for a marker using Standard Matching.
- **Five-Star Matching** – type of matching where matching locations are determined relative to “stars” generated at the intersection of the stripe and plaid repeat lines and at the center of every four “stars”. There can be one plaid and one stripe matching location defined for a marker using Five-Star matching.



Piece Placement Strategies

AccuMark can use two different matching strategies to restrict piece placement during marker making. These strategies are assigned to pieces during piece setup (see the next section) and can be edited during marker making.

- **Piece-to-fabric matching** – pieces will only place in relation to the repeating design on the fabric.
- **Piece-to-Piece Matching** – pieces will place in relation to other pieces in the marker.

In addition, one of the following placement relationship strategies is assigned to each matched piece:

- **Relative Matching** – restricts piece placement so that matched pieces align in the same relative position to a plaid or stripe line.
- **Same Matching** – restricts piece placement so that matched pieces only align on the same exact position of a plaid/stripe line.
- **Symmetrical Matching** – restricts piece placement so that matching locations are equal distances on opposite sides of a stripe line. Matched pieces will align to any plaid/stripe line.

Line Matching

The Line Matching method uses internal lines labeled with numbers to determine placement strategy. Matching lines can be added and assigned labels during digitizing or in Pattern Design.

Piece Preparation

Internal match lines are added using the following considerations:

- Lines are based on critical match points on all pieces.
- Lines must be parallel or perpendicular to the grain line.
- Lines must be assigned a label that is added when the piece is digitized or in Pattern Design.
- Only one internal label can be assigned per line.
- To match a star (in Five-Star matching), a piece must have two intersecting match lines.
- Each piece can have more than one matching strategy. For example, a piece can match to another piece and to the fabric repeat. Use multiple lines to create additional match relationships for a piece.
- The same line label can be used on vertical and horizontal lines.

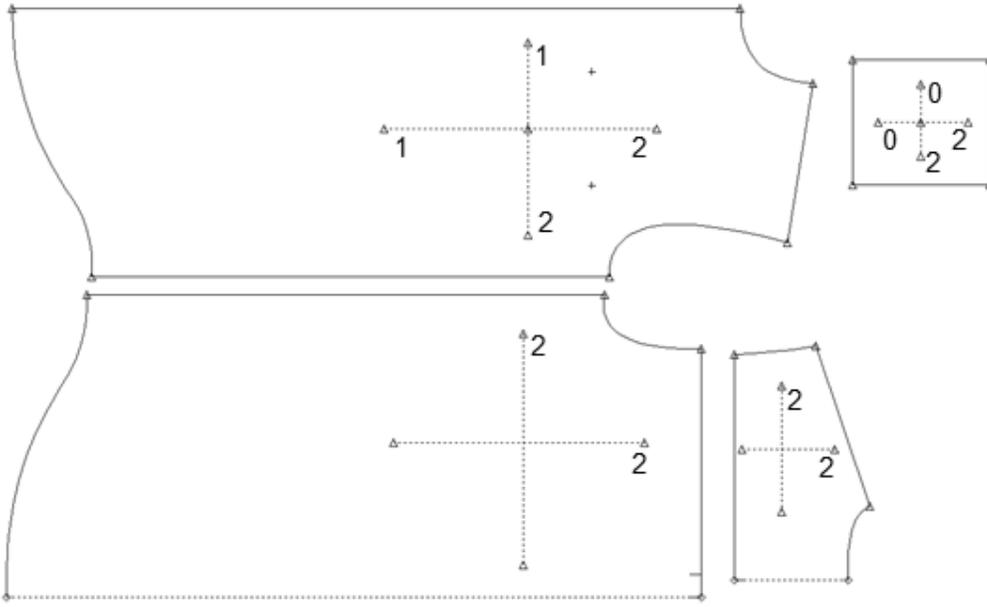
To Create Matching Lines:

1. Determine all matching locations for pieces.
2. Draw matching lines on the pieces to be matched. Make sure all the matching lines are created in the same direction on all pieces.
3. Input the matching lines by digitizing or in Pattern Design.
4. Label the matching lines according to the following chart.

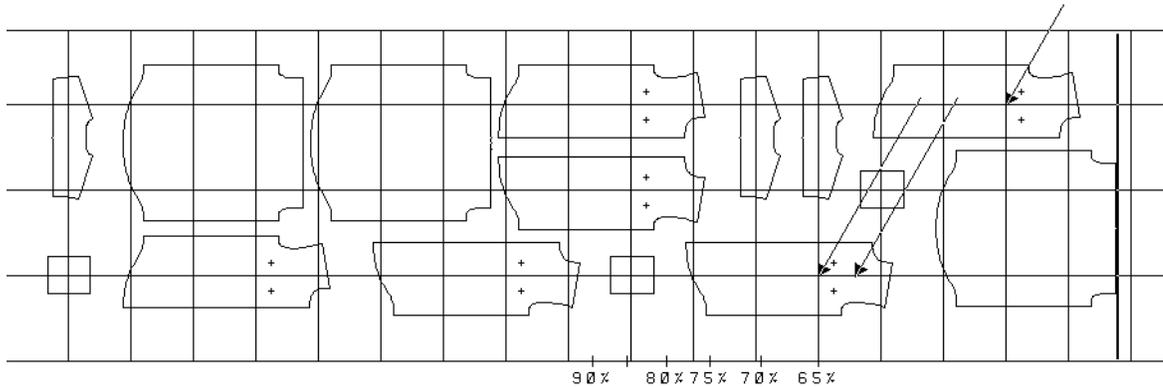
Internal Label	Match Type	Explanation	Example
0	Piece-to-fabric only	For pieces that will match directly to the fabric repeat. This line does not match to another piece with a 0 matching line.	Centering a flower on a sofa cushion piece
1	Relative match, piece-to-piece	For left and right piece of the same category. The left and right pair is defined in the model	Matching the left and right front on a shirt.
2 – 15	Relative match, piece-to-piece	For matching pieces with different categories	Matching a shirt pocket to a front piece on a shirt.



If more than one matching relationship is needed on a single piece, create a single line and split the line in Pattern Design. This will ensure that the line is in the same location for all matching.



In this example, the pocket will match to the repeat of the fabric (line #0). It will also match to the front, back and yoke pieces (line #2). The front will also match to its pair created in the model (line #1). The placed marker below was made using these same pieces. Because the pocket was placed first, all the pieces are matching to the grid intersections. The pocket was the only piece that *had* to match to the repeat. The other pieces had relative matches that followed the pocket.



Ordering Markers with Line Matching

After the pieces have been assigned the proper lines for matching, the order can be created for the marker. The order is where the repeat information will be entered for the marker.

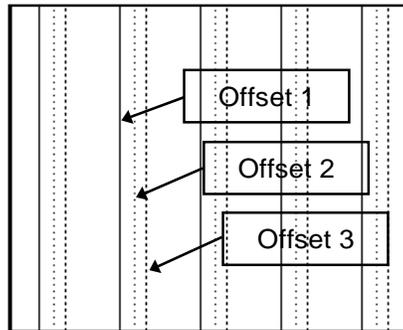
To Order a Marker with Line Matching:

1. Order a marker as you normally would with Easy Order Advanced Layout.
2. Enter the repeat distance in the **Plaid** and **Stripe** fields. This will be the measured distance between repeating elements in the fabric design.

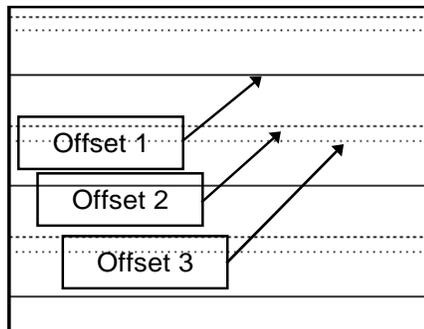
Step 4 - Fabrics									
Matching	5-Star	Stripe Repeat	Stripe Offset 1	Stripe Offset 2	Stripe Offset 3	Plaid Repeat	Plaid Offset 1	Plaid Offset 2	Plaid Offset 3
<input type="checkbox"/>	<input type="checkbox"/>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

3. If needed, enter the **Offset** information. **Offset 1** is the distance from the selvedge or end of the marker to the main repeat. This will create the first grid in the marker. **Offset 2** and **Offset 3** are used to create additional matching grids on more complex fabrics. The repeat will be the same for all offsets.

- **Plaid Offset** – the distance from the left end of the marker. Always entered as a positive value.



- **Stripe Offset** – the distance between the stripe and the center or bottom of the marker. Positive values are measured up from the bottom edge of the marker. Negative values are measured down from the center line of the marker.



4. Process the order normally.

Placing Pieces in a Matched Marker

As pieces are placed, the matching locations will automatically match to the repeat grid according to the match types used. Arrows will display at the match locations that are used when a piece is placed. The parameters for matching can be changed in marker making to suit different fabrics.

Display Settings for Matching

In Easy Marking, some settings can affect the way the pieces are placed on the repeat grid. You can also choose to hide or show the internal matching lines.

To Change the Matching Display Settings:

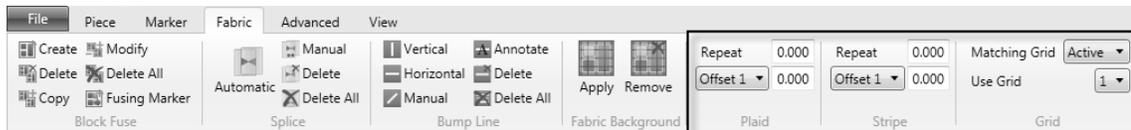
1. Open a marker with matching defined.
2. From the **View** tab, select **Settings** in the **Display** panel.
3. Make changes to the fields that pertain to matching:
 - **Internals** – use the drop-down menu to show the internal matching lines. Select **Full** or **Default** to show the internal lines.
 - **Matching (Type)** – choose **Standard** or **5 Star** to override the matching type defined in the order. When the Settings are saved, the new Matching Type will be applied.
 - **Use Grid Number** – changes the grid used for actively matching pieces. Choose **1**, **2** or **3** from the drop-down menu. Pieces matched to other grids will not be affected by this change.
 - **Validate for Invision™ or AccuMatch™** – when checked this setting restricts pieces to match within the same bite as defined for the cutter.

- **Invision Match** – length of the bite used for matching. This information is typed in.
- **Matching Grid** – controls the display of the repeat grid on the marking work area. Choose from the following options:
 - **Off** – no matching grids will be displayed on the marking work area. Pieces will still match to the grids even though they are not visible.
 - **Active** – only displays the grid selected in the **Use Grid Number** setting. Pieces are actively matching to this grid.
 - **All** – displays all the grids on the marking work area. The active grid will be displayed as a solid line. The other matching grids (if defined) will be displayed as dashed lines.

4. Click **Save** to store the settings and then **OK** to close the dialog box.

Changing the Matching Criteria in Easy Marking

The repeat and offset values defined for a matching marker can be changed interactively in Easy Marking. Any changes will override the original values. The marker can be stored with the new repeat or offset values.



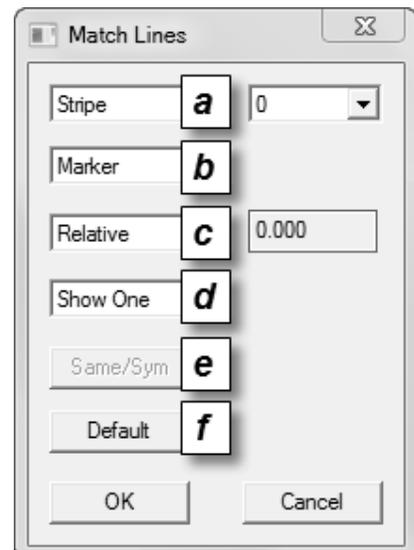
- To change the plaid repeat, go to the **Fabric** tab and click in the **Repeat** field in the **Plaid** panel. Type in the new plaid repeat.
- To change the stripe repeat, go to the **Fabric** tab and click in the **Repeat** field in the **Stripe** panel. Type in the new stripe repeat.
- To change the plaid offsets, go to the **Fabric** tab and click on the **Offset 1** button in the **Plaid** panel to select the correct offset to change (**Offset 1**, **Offset 2**, and **Offset 3**). Type the offset distance in the field next to the button.
- To change the stripe offsets, go to the **Fabric** tab and click on the **Offset 1** button in the **Stripe** panel to select the correct offset to change (**Offset 1**, **Offset 2**, and **Offset 3**). Type the offset distance in the field next to the button.

Changing Placement Strategies in Marker Making

The way pieces can be placed in reference to the matching grids can also be changed within marker making. Matching can also be disabled using these settings. Only one change can be made at a time.

To Change the Placement Strategies for Matching Lines:

1. Open a marker with line matching defined.
2. In the **Toolbox**, click the **Matching** icon .
3. Right click on a piece to change the placement strategy. The **Match Lines** dialog box will display.
4. Make changes to the available fields to adjust the piece placement:
 - a. Matching Line direction and number – choose from the drop-downs to set which line is being changed.
 - b. Matching Type – choose what the line should match to, from the following choices:
 - **Marker** – matches the piece to the fabric.



- **Piece LR** – matches the piece to its pair (defined in the model; same category names).
 - **Piece LL** – matches the piece to another piece with the same line number.
- c. **Stripe/Plaid Alignment** – how the piece should match to the repeat grid lines in reference to other matched pieces. The field next to this box is reserved for an offset amount for pieces that are matched to the **Marker** (a) and to a **Relative** (c) location. Choose from the following options:
- **Relative** – allows the piece to match to a similar matching location in the marker to other pieces.
 - **Same** – restricts the piece to match only to the same repeat line as other pieces.
 - **Symmetric** – matched pieces will be placed at equal distances on opposite sides of a stripe or plaid line.
 - **None** – the piece will not be matched.
- d. **Matching Line Display** – shows the selected matching line on the highlighted piece (**Show One**) or all the pieces with the same line (**Show All**).
- e. **Same/Sym** button – click this button to select the piece to match Same or Symmetrically to the selected piece.
- f. **Default** – click this button to return the settings to the original settings from the Order.
5. Click the **OK** button to accept the changes and close the dialog box.

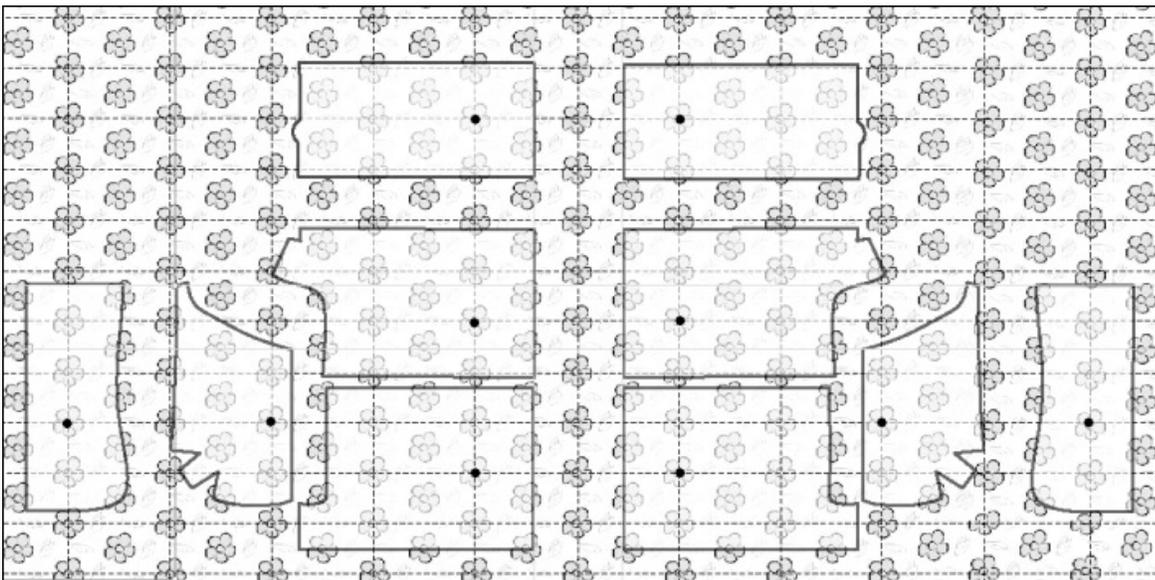
Point Matching

This method of matching lets you set up and perform matching based on special point numbers, a matching rule table, and fields in the Order. Point matching lets you assign restrictions on the placement of pieces relative to each other, relative to the fabric design, or a combination of both.

Piece Preparation

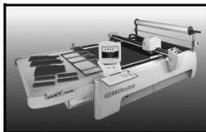
Match points are used by AccuMark to match pieces with each other and/or to the piece goods.

- Matching points can be perimeter points or internal points
- Use as few as possible per piece. A single match point, properly placed in the piece, can be used for both piece and fabric matching in both the stripe and plaid directions.



To Create Matching Points:

1. Align matching patterns, as they will be sewn together.
2. Select an area of the product where all pieces are attached and draw a continuous line across all pieces.
3. Draw perpendicular lines to indicate matching for the stripe direction.
4. If only one line exists, place the match point anywhere on the line. If two lines exist, locate one internal matching point at the intersection of these two lines for each piece.
5. Decide which major piece(s) should be placed before any other pieces in the marker. Base this decision on where piece-to-fabric matching is the most critical for the model.
6. Use the digitizer or Pattern Design to insert the points.
7. Assign Special Point Numbers to the matching points. Special point numbers should be:
 - Unique to each piece in the model
 - Three or four digit numbers
8. Save the pieces with the matching points.



Cutter Note: Optional Stop (OpStop) Points

Optional stop points should be assigned to critical match points on pieces that will be cut on a GERBERcutter. An op-stop is a type of internal point that causes the GERBERcutter to stop before cutting a piece. This enables the person operating the cutter to reposition the cutter beam over an exact location on the fabric.

Creating Matching Rules

Point Matching requires rules to be set up to determine the piece placement strategies. Special point numbers and corresponding piece categories are entered in the Matching form. Before completing this form, you should know:

- The categories of the pieces that will be matched
- The special point numbers assigned to the matching pieces
- How the pieces will match to each other, and
- How, or if, they will match to the fabric

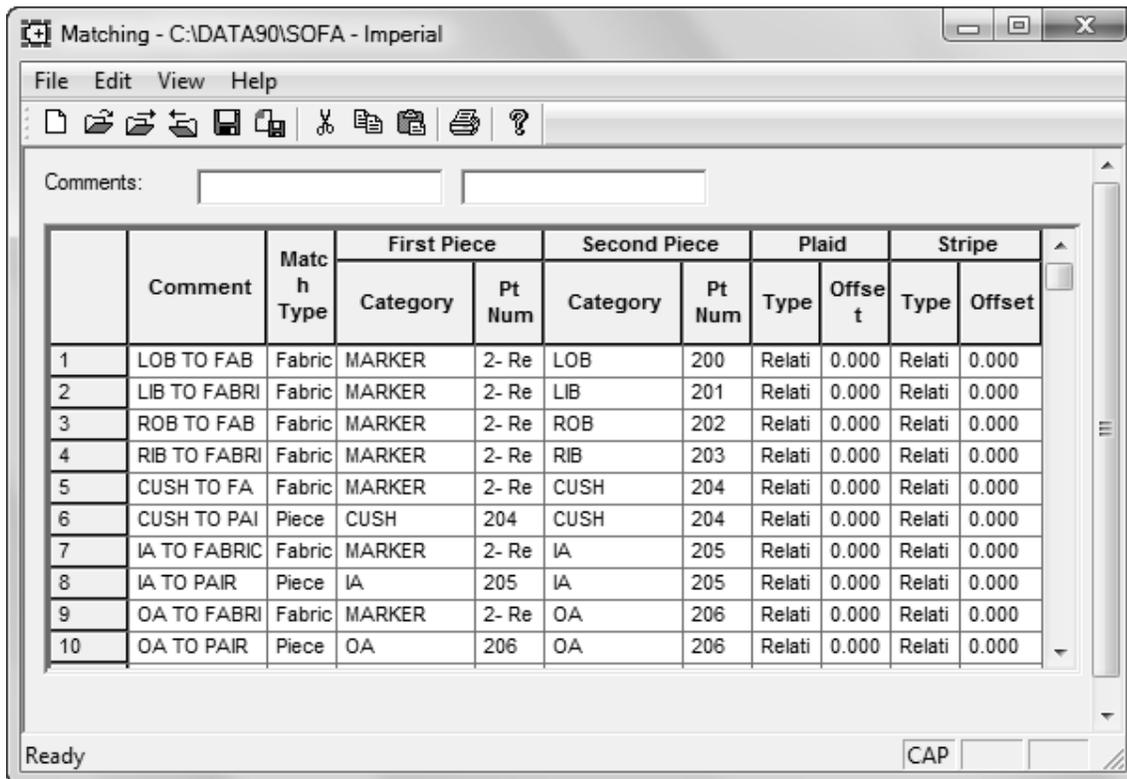
The name of this matching editor is entered in the Order and referenced during marker order processing. Each rule in the editor is numbered and contains the following information:

- **Match Type** – the way the piece will match, either to a Piece or the Fabric.
- **First Piece** – the category name and point number found on the first pattern piece to match. For piece to fabric rules, enter a number (from the chart below) to indicate where the piece should match.

1st Point Number	Marker Match Location	X Match (Plaid)	Y Match (Stripe)	Offsets
1	Bottom or Offset From Bottom	No Match or Match Relative Plaid	Must Match to Same Stripe to maintain match location	Positive: Above bottom
2	Any Plaid or Stripe Repeat	No Match, Match Relative Plaid, or Match Same Plaid	Match Relative Stripe, No Match, or Match Sym to Stripe	Positive: Above or to Right Negative: Below or to left

3	Top or Offset from top	No Match or Match Relative Plaid	Must Match to Same Stripe to maintain match location	Positive: Below top
4	Center or Offset from Center	No Match or Match Relative Plaid	Must Match to Same Stripe to maintain match location	Positive: Above Negative: Below

- **Second Piece** – the category name and point number of the piece to match to the first.
- **Plaid** – the plaid alignment strategy for placing the piece.
- **Stripe** – the stripe alignment strategy for placing the piece.



To Create a Fabric-to-Piece Rule:

1. From the **Launch Pad**, select **Marker Creation, Editors** and then **Matching**.
2. Enter a Comment, if desired. This field can be used to describe where the rule will be used.
3. Select Fabric for the **Match Type**. Note that MARKER fills in automatically in the First Piece Category field (the point will be matched to the marker or fabric).
4. In the **First Piece** section, select 1, 2, 3, or 4 in the Point Number field. Refer to the chart on the previous page for these selections.
5. In the **Second Piece** section, enter the Category and Point Number of the piece matching to the fabric.
6. In the **Plaid** and **Stripe Type** fields, choose an alignment strategy for the piece.
7. In **Plaid** and **Stripe Offset** fields, type a value for offset from the repeat.
8. From the **File** menu, select **Save** or **Save As**. If **Save As** was selected, type in a name for the file and click **Save**.

To Create a Piece-to-Piece Rule:

1. From the **Launch Pad**, select **Marker Creation, Editors** and then **Matching**.
2. Enter a Comment, if desired.
3. Select Piece for the **Match Type**.
4. In the **First Piece** section, enter the piece Category and Point Number.
5. In the **Second Piece** section, enter the Category and Point Number that will match to the first piece.
6. In **Plaid** and **Stripe Type** fields, choose an alignment strategy for the pieces.
7. In **Plaid** and **Stripe Offset** fields, type a value for offset from the repeat.
8. From the **File** menu, select **Save** or **Save As**. If **Save As** was selected, type in a name for the file and click **Save**.

Ordering Markers with Point Matching

The order can be created after the point numbers and matching rules have been established.

To Order a Marker with Point Matching:

1. Order a marker as you normally would using Easy Order Advanced Layout.
2. In the **Step 4 – Fabrics** area, click in the field and use the lookup to select the name of the Matching Rules to be used in the marker.
3. Choose the Matching Type: **Standard** or **Five Star**.
4. Enter the repeat distance in the **Plaid** and **Stripe** fields. This will be the measured distance between repeating elements in the fabric design.

Matching	5-Star	Stripe Repeat	Stripe Offset 1	Plaid Repeat	Plaid Offset 1
SOFA	<input checked="" type="checkbox"/>	7.000	0.000	5.000	0.000

5. If needed, enter the **Offset** information. **Offset 1** is the distance from the selvedge or end of the marker to the main repeat. This will create the first grid in the marker. **Offset 2** and **Offset 3** are used to create additional matching grids on more complex fabrics. The repeat will be the same for all offsets.
 - **Plaid Offset** – the distance from the left end of the marker. Always entered as a positive value.
 - **Stripe Offset** – the distance between the stripe and the center or bottom of the marker. Positive values are measured up from the bottom edge of the marker. Negative values are measured down from the centerline of the marker.
6. Finish entering the model, size and quantity information.
7. Process the order normally.

If not all matching fields are visible in Easy Order, select **Tools / Options**. In the Fabric tab ensure the desired **Matching** options are selected.

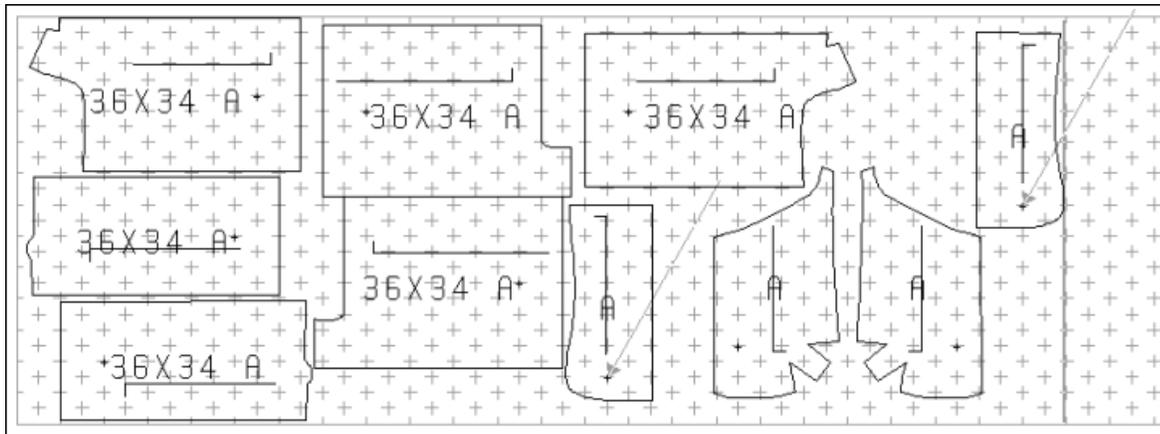
Matching Information

Display Column	Default Value	Display Column	Default Value
<input checked="" type="checkbox"/> Plaid Repeat	0.000	<input checked="" type="checkbox"/> Stripe Repeat	0.000
<input checked="" type="checkbox"/> Plaid Offset 1	0.000	<input checked="" type="checkbox"/> Stripe Offset 1	0.000
<input type="checkbox"/> Plaid Offset 2	0.000	<input type="checkbox"/> Stripe Offset 2	0.000
<input type="checkbox"/> Plaid Offset 3	0.000	<input type="checkbox"/> Stripe Offset 3	0.000
<input checked="" type="checkbox"/> 5-Star	<input type="checkbox"/>	<input checked="" type="checkbox"/> Matching	<input type="text" value=""/>

Marker Making with Point Matching

After the order has been processed, the marker can be made as requested. Features in Easy Marking allow matching criteria to be edited for both the marker and individual pieces. This means that one matched marker can be used to create many different markers.

To place a piece in a marker with Point Matching, select it from the menu area and place it in the marker as you normally would. As the piece is placed, it will automatically align with the repeat grid based on the matching locations and types. The repeat, offset and display information are changed the same way as for line matching (see previous sections).



Disabling Point Matching in Marker Making

If Matching is not required on certain pieces which were ordered with matching, it can be turned off in Marker Making interactively using the Toolbox function Matching.

To Change the Placement Strategies for Matching Points:

1. Open a marker with Point Matching defined.
2. In the **Toolbox**, click the **Matching** icon .
3. Right click on a piece to change the placement strategy. The **Match Points** dialog box will display.
4. Make changes to the available fields to adjust the piece placement:
 - **Marker Plaid** – turns piece-to-fabric plaid matching ON and OFF.
 - **Marker Stripe** – turns piece-to-fabric stripe matching ON and OFF.
 - **Piece Plaid** – turns piece-to-piece plaid matching ON and OFF.
 - **Piece Stripe** – turns piece-to-piece stripe matching ON and OFF.
 - **Default** – click this button to return matching to the original ordered settings.
5. Click **OK** to accept the changes and close the box. The **Cancel** button can be used to exit without applying the changes.



Plotting Matched Markers

Match marks can be plotted as small horizontal and/or vertical lines. You can plot match marks on a marker by selecting the desired setting in the Match Marks field in the Marker Plot parameter table.

To Edit the Plaid Stripe Field in the Marker Plot table:

1. From the **Launch Pad**, select **Plotting and Cutting** and then **Marker Plot Parameter Table**.
2. Select one of the following options from the Plaid/Stripe field:
 - **None** – no plaid or stripe marks will be plotted.
 - **Both** – plots both the plaid (vertical) and stripe (horizontal) match marks on all four sides of the marker as tick marks.
 - **Plaid** – plots only the plaid match marks as tick marks on the top and bottom of the marker.
 - **Stripe** – plots only the stripe match marks as tick marks on the left and right sides of the marker.
 - **Bottom Left** – plots the match marks on both the bottom and left side of the marker.
 - **Both Full** – plots plaid and stripe match marks as solid lines through the entire marker.
 - **Plaid Full** – plots only the plaid match marks as solid lines through the entire marker.
 - **Stripe Full** – plots only the stripe match marks as solid lines through the entire marker.
3. Click **File** and then **Save** or **Save As**. If **Save As** was selected, type in a name for the file and click **Save**.

