BERNINA DesignWorks

Mastery Book | Software Suite

made to create BERNINA

Mastering the DesignWorks Software

Congratulations on the purchase of BERNINA DesignWorks.

Training Manual Overview

The following workbook is designed to provide an overview of the basic operation of the DesignWorks Software Suite.

It includes all three software modules – PaintWork, CrystalWork and CutWork; as the process of working with designs is similar. The difference lies in what is to be done with the designs. Are they to be cut, painted or crystalled, or a combination of all three?

The first half of the training manual is an overview of how the software works. The second half is a section for each of the modules; including a series of hands-on exercises to work through, to strengthen software knowledge.

Full instructions for using the companion DesignWork Accessory Tools are provided in the packaging with the tools.

For DesignWorks installation details, please consult the DesignWorks Book included in the Software Box. Note-installation instructions may also be downloaded from BERNINA.com.

Product Registration Number and Codes

Please take a moment to record your serial numbers for safe keeping.

USB Security Key/ Dongle number _____

Access codes for:

CutWork _____

PaintWork _____

CrystalWork _____

DesignWorks Overview

The BERNINA DesignWorks Suite includes three independent software modules which can be used alone or combined to personalize sewing and embroidery designs that can be cut, painted and or decorated with crystals.

The software uses one work space, and similar techniques are used to create the elements for the design. Decide between closed or open lines to create an object that is then converted to CutWork, PaintWork or CrystalWork.

The product modules activated through the purchase and input of License Codes appear in the Object Properties Area of the work space. See the BERNINA DesignWorks book for more details about License Codes and how to upgrade the Software with additional modules.

CutWork

CutWork can be used to cut fabric and other materials in single or multiple layers, using compatible embroidery machines and a machine-ready design file created in the DesignWorks Software. Remove the needle and replace with the small CutWork blade which manually pivots to cut in four positions. Cut quickly and easily on different materials. Use to cut appliqué or free standing shapes. Create cut outs in projects or add multiple layers for a dimensional appearance.

PaintWork

With PaintWork, compatible embroidery machines create machine painted masterpieces. Create shapes and outlines including lettering and motifs to be easily painted in different colors. Insert textile pen or marker and attach the tool on the machine. The machine decorates textiles quickly and easily.

CrystalWork

With CrystalWork, crystal appliqués are easy to create. Program the placement for the crystals on the design in the software. With the CrystalWork tool and compatible embroidery machine, the rhinestone template is punched. Adhere the template onto a piece of stiff cardboard, and move hot fix crystals into place using a soft brush. An adhesive transfer tape keeps the crystals in place while they are heat set in place to create an instant sparkle on any project. Fill or outline a shape, or simply add crystals to existing embroidery designs. Templates may be used repeatedly.

With the complete DesignWorks Suite, techniques may be used independently or combined for design interest. Add embroidery to create a variety of effects on any project.

Already own the BERNINA CutWork Software?

To update the original BERNINA CutWork Software to DesignWorks, visit your local BERNINA dealer to purchase PaintWork and/or CrystalWork Software License Codes along with the corresponding Tools.

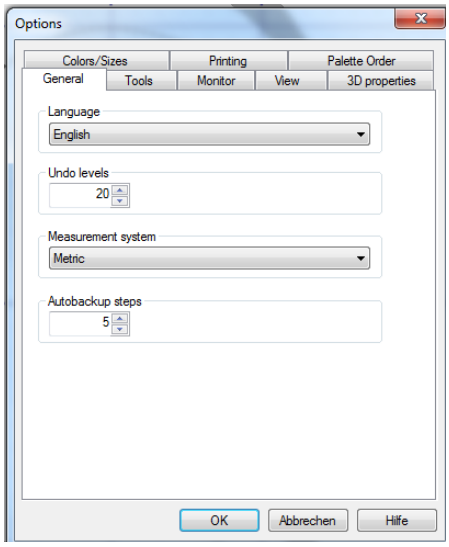
Go to http://www.bernina.com/en-US/Support-5/Software-en/DesignWorks-en/CutWork-en and download the DesignWorks Software installation file. To install the License Codes, click on the Windows Start button on the lower left corner of the computer screen. Go to *All Programs>BERNINA DesignWorks>USB Key Upgrade*.

Getting Started

The PC requirements are listed in the DesignWorks Book that is included with the software box. Use of an external mouse when working in the software is highly recommended.

Please note that the full manual in English can be found as a PDF in *Start>All Programs>BERNINA DesignWorks>BERNINA DesignWorks Manual*.

When the software is open, click on *Help>Help Topics*.



Software Settings

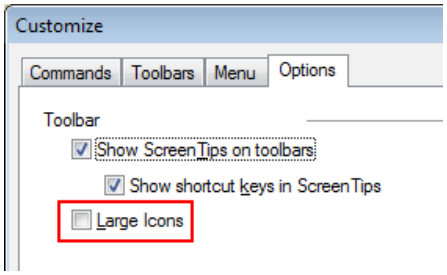
Changing the Measurement system

To change the Measurement system click on Tools>Options>General.

From the Measurement System bar, click on drop down arrows and select Metric or United States>OK.

Rulers will update when they are hidden and re-selected *View>Rulers*.

The Software – User interface/screen language may also be changed. The new selected language will change when the Software is re-opened.

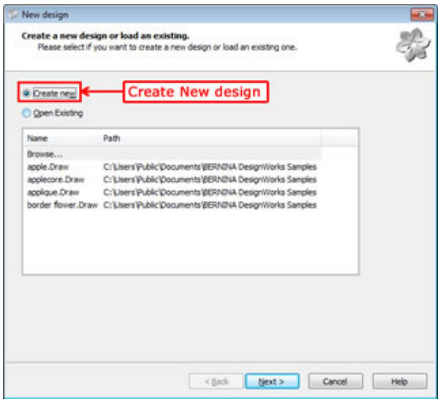


Changing the Icons

View>Toolbars>Customize>Options

Here it is also possible to:

- Increase size of icons
- Show Screen Tips and Shortcut Keys when hovering over an icon



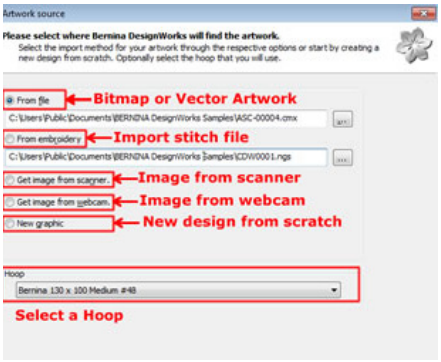
The DesignWorks Wizard

When BERNINA DesignWorks Software opens, the wizard dialog box opens providing instructions to create the design.

First select between:

› *Create New* – using image files or embroidery files or *Open Existing (draw files) Files* that were created in DesignWorks

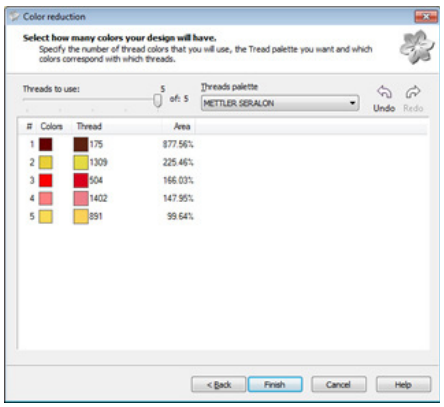
› Click on Browse or select from a list of recently opened designs



Create New

When creating a new design there are 5 choices:

- From File
- From Embroidery
- Get image from scanner
- Get image from webcam
- Select New Graphic



From File

› Select to open artwork in a variety of supported formats. These image files can be either Bitmap or Vector format. Vector format is the preferred quality as the software converts it automatically while a Bitmap file first needs to be put through a tracing procedure.

› There are many Vector images (cmx format) included in the software

› The following path is followed to access designs on the different operating systems

- **XP** *C>Documents & Settings>All Users>Documents>BERNINA DesignWorks>*
- **Vista** *C>Users>Public Documents>BERNINA DesignWorks>*
- **Windows 7/8** *Libraries>Documents>BERNINA DesignWorks>*

› When a design is selected then it will be converted to brush colours (if paintwork is activated in the software or thread colours if it is not.

From Embroidery

› Select the browse icon to locate the design file. A wide variety of formats are supported.
Tip: To create a design using the tools in the software (no graphic), open *DesignWorks>New>Next>New Graphic>Finish*.

Get image from scanner

Get image from webcam

› Select *<Next>*and a dialog box will appear with further information.

› The Webcam and scanner must be connected.

› Save the design

Select New Graphic

› If this is selected then an empty design area will open.

Select Hoop

› Select the hoop and the Foot/Tool, to be used in the project.
Note: This is important to provide a visual of the available «stitching» space of each tool.

Accessory/Foot Number	Technique
Foot #26	Embroidery
Foot #44	CutWork
Foot #48	CrystalWork
Foot #93	PaintWork
Foot #43	Free motion Couching Foot

Fabric Type

This is recommended for traditional embroidery and is important for appropriate stitch density of the finished design.

› Select from the 6 fabric types.

Type	Thread weight	Density	Notes
Embroidery Smooth	40wt	55	Light and smooth Embroidery
Embroidery Ultra Light	Wool	85	Low density
Embroidery Light	30wt	55	Low density
Embroidery Normal Light	40wt	40	Normal density/Light underlay
Embroidery Normal	40wt	40	Normal density
Embroidery Heavy	thin	35 – heavy fabric	High density

Fabric Color

Optional

› Select the color closest to the fabric to be used for a realistic background.

› Double click on the color chip to open a dialog box with additional options.

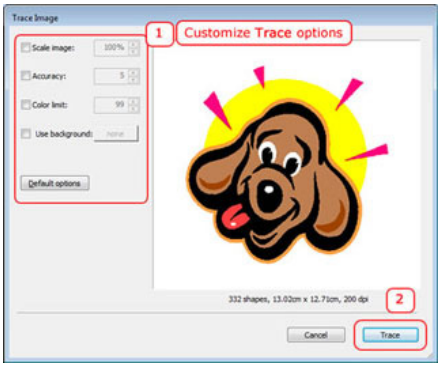
› If the fabric color is not important, choose *<NONE>*or white for visibility while designing.

› Color reduction dialog box comes when an embroidery design is selected.

Opening Artwork

There are 3 options to choose from:

- Open as a Backdrop to use for manual digitizing.
- Trace - This automatically converts the picture into a design.
- Open as Photopaint which converts it onto a «painted effect» image. This function is only available with the Paintwork Module



Trace

This converts a Bitmap image into a Vector graphic. The Vector graphic is then automatically converted into a design with outlines. A Bitmap can also be imported as Backdrop for creating a new embroidery design from scratch – but not after converting the Bitmap to a Vector.

› Select *Trace>Next* to open the Trace Image dialog box.

TIP: The Trace Image dialog box can be enlarged so the adjustments are easier to view. Click and drag the corner of the dialog box to scale proportionally or drag the top/bottom or sides of the box to alter the height/width of the box.

Scale image

The Vector design in Trace Image will always open at the default 100% - the original size of the Bitmap.

› To enlarge or reduce the Vector size, click on Scale Image, then type in the desired value above or click on the up-or-down arrows.

The scaling will always be proportional to all dimensions of the design: A 35mm x 60mm design will become a 70mm x 120mm. Any change in values is automatically changed in Preview.1

Accuracy

Choose the level of detail needed for the original artwork to create the final DesignWorks design.

Click Accuracy, the default Value 5 is active, increase up to 8 or down to 1. The Accuracy value varies greatly among bitmap images, so experiment. Each time a value is adjusted the results are visible in the Preview window.

Color limit

Indicates the number of thread/brush (pen) colors required in the Traced Image. Click on the box. It opens with a default Value 99 (the maximum number of colors), determine how many colors are required in the design and reduce accordingly.

Use background

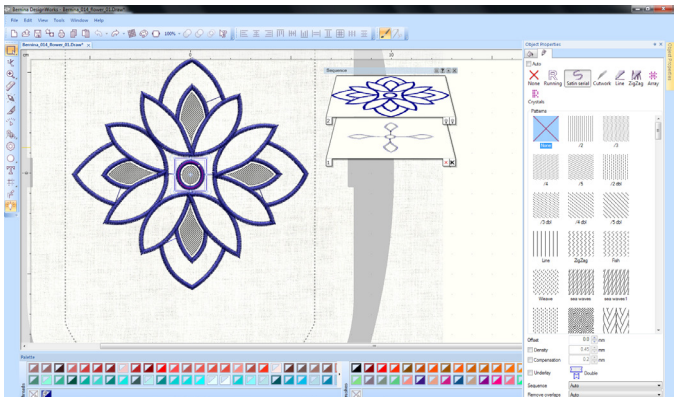
Select Use background to make a color/object selected from the Preview area transparent. This is an easy way to remove a specific color/object from the Bitmap image.

- To activate this option, click the checkbox next to it.
- Move the mouse cursor over the Preview; it will automatically change to an eyedropper tool.
- The color selected from the preview area with the eyedropper tool will become transparent and will show in the color tab next to the Use background option. Only one color object from the design can be made transparent.
- Make a different color transparent by selecting a different color with eyedropper tool from the design.

Open as Photo Paint

- see Paintwork Chapter.

Workspace Tour



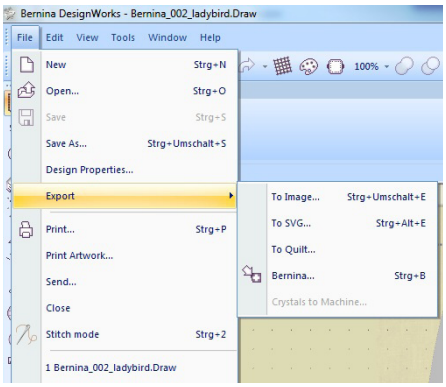
Main Menu

Many of the following tools can be viewed once a design is open.

File

Here it is possible to begin a new design or open a previous design. It is also where the commands are to save, print or export designs.

Export File/Saving as Draw <Ctrl+B>



To edit completed design files at a later time, the design must be saved in the .Draw file format. Before exporting the design, first save the .draw file. Once the design is exported for stitching, it will be automatically converted to a machine ready .exp file.

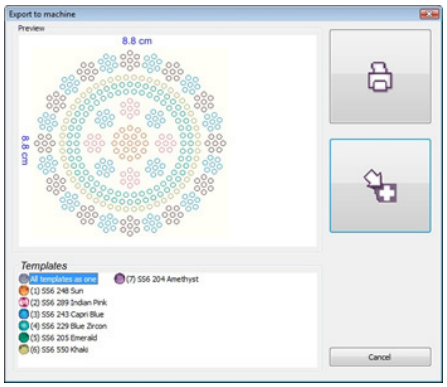
The quicker way is to select the export to machine icon on the *<Export to Image button>*on the Standard Tool bar. Crystals are handled differently see Export to crystals.

Export to Image

BERNINA DesignWorks offers the ability to export the embroidery design created to an image file. The embroidery image files can be used in many graphic design applications, including: cards, scrapbooking or for printing on transfer papers for textile applications.

To export the embroidery design to an image file:

- *File>Export>To Image*
- Choose the location in which the file will be stored
- Name the exported image file in the File name field
- Select the type of file to save the image as Tiff (*.tif), PNG (*.Png), Jpeg (*.jpg, *.jpeg) and Bitmap (*.Bmp).
- *Save*



Export to Crystal

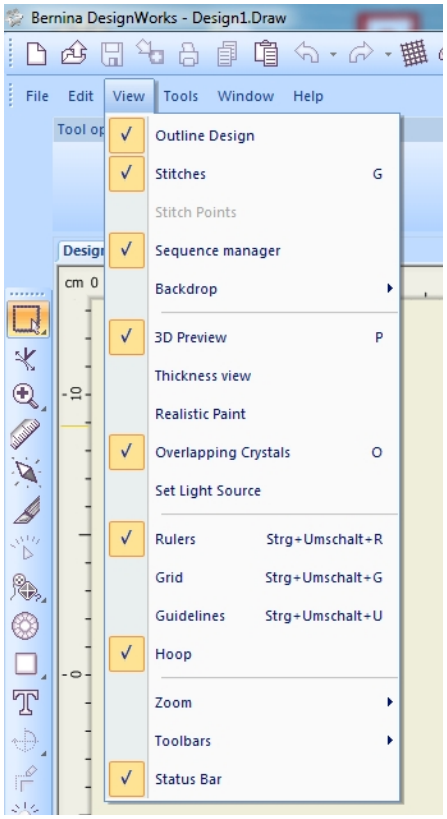
If a design includes crystals it must be exported as a separate file.

Export to SVG

When a design is created using the design tools of BERNINA DesignWorks, there is the option to export it to a special format called SVG (Scalable Vector Graphics) and keep it as a Vector file. The exported Vector format can be edited in various vector editing tools and can be used for printing purposes or for creating combinations of embroidery and textile printing on garments.

Inside SVG files, only vector designs can be stored and not bitmap designs. If a Bitmap backdrop was used to create the Vector design, try to export the bitmap to SVG, the Bitmap will be lost.

Only Vector artwork will be saved.



View

From the view dropdown menu there are different ways to view a design. It is possible to check more than one and which selected depends on effects used.

Outline Design toggle between viewing design as blocks of color or with design «boundary» visible, note 3D preview must be disabled.

Stitches toggle the visual of the design's stitches on or off.

Stitch Points toggle visual of needle penetration points on or off. **Note:** 3D preview must be disabled.

Sequence Manager

The sequence manager shows the order of the layers and attributes of each layer of the design.

Note: *View>Sequence Manager* must be checked in the drop down menu.

Symbols on the right hand side of each layer indicate what type of object the layer is and the left icon represents the fill and the right icon represents the outline. When nothing is in use then a cross will appear.

Normal stitch objects (Running, Satin serial, Netfill)

CutWork objects

Appliqué objects

Imported artwork from stitch files

Paint objects

Photo paint objects

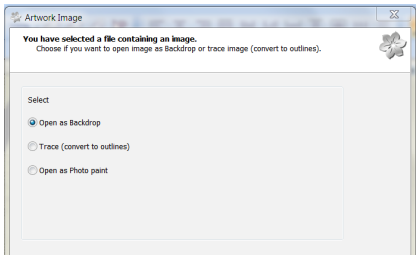
none fill or outline

Array fill or outline

Crystal fill or Crystals fill or outline

Lightbulb a combination of stitch, paint and or crystal, that is optimized by the software.

- Change the sequence by clicking and dragging the desired layer up or down.
- Select one or several layers at once to combine or edit objects.



Backdrop

When opening an image as Backdrop, the image can be used as a guideline to draw a design on top of it. The following options are available:

Hide (Alt+1) By clicking on Hide to hide the imported backdrop.

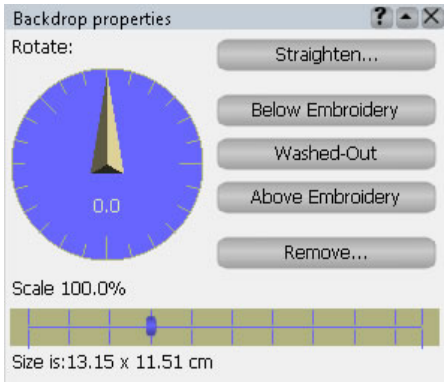
Straighten Image Select this and the cursor changes to a crosshair. To straighten the image, click first on one side of the image and drag to the other side of the image; it will adjust to the line created between the two points. Apply option as many times as needed to bring the backdrop bitmap to the desired position.

Below embroidery (Alt+2 Make the backdrop visible and position it below the design being created. This is the default setting when opening an image as a Backdrop.

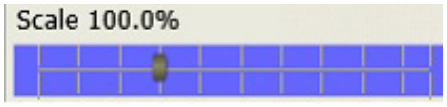
Washed-out (Alt+3) The colors of the backdrop will have lighter tones.

Above embroidery (Alt+4) Position the backdrop image to appear above the design created making it possible to view the backdrop image and be able to design objects that will be on top of larger objects already in place.

View>Backdrop>Properties are available only when a backdrop image is inserted in the design area.

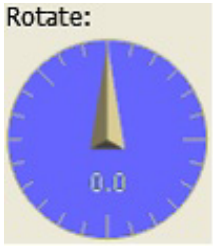


A 3D pop-up dialog appears on the working area with the following options:



Scale Drag the track-bar to the left to reduce the image and drag it to the right to enlarge the Backdrop proportionally. Scale to reduce the image to a minimum 10% from its initial size and enlarge the image to a maximum of 300%.

Rotate This tool rotates the backdrop image by clicking and dragging the indicator clockwise or counterclockwise, before starting to draw the embroidery design. The rotation circle always opens up at the zero position.



Remove Press this button to remove the imported bitmap backdrop.

3D Preview (P) The design will be visible in 3D, showing a preview of how it will look when stitched on the selected Fabric. In the 3D Preview, threads are much thicker than in the stitches view and can be enabled-disabled both in DRAW or Stitch modes.
In the Design area, the Fabric and its Color can be changed from the Select fabric icon on the standard Toolbar or from *Tools>Select Fabric option*. The only option that is not available in 3D mode is stitch points view.

Thickness view relates to layers of stitching and if it overlaps then the overlaps will be shown in certain colors, yellow for two colors and red for too many colors

Realistic Paint see PaintWork

Overlapping Crystals see CrystalWork

Set Light Source is available when the 3D view is enabled.

Select this tool and the menu appears in the design area. Move the mouse over the ball to change the angle of the light and move the dial to left or right to increase or decrease the intensity of the light.

View Ruler (Ctrl+Shift+R) The rulers appear in the top left corner of the design area and show the X and Y axes based on the measurement unit selected and zoom being used.

View Grid (Ctrl+Shift +G) will appear as small dots across the design area in vertical and horizontal lines. Zoom in to view these dots.

View Guidelines (Ctrl+Shift+U) Note: *View>Hoop* must be checked to activate Gridlines. There are 3 types of guidelines to assist with positioning - Vertical, Horizontal, or Diagonal; Horizontal and Vertical lines appear by default. To customize Guidelines, *View>Ruler* must be checked. Right click on the rulers and a menu appears. Using this menu to easily add any type of guideline or use the guideline editor dialog to help manage the guidelines of the design. Finally through Guideline options customize guideline appearance and state.

View Hoop (Ctrl+Shift+ H) toggle the view of the hoop on or off. Select a Hoop for the design using Change Hoop dialog (*Tools>Change hoop* or the Change Hoop icon on the Standard toolbar).

Zoom There are 3 settings that can be customized in Zoom:

- In (Z),
- Previous (F3)
- and All (F4)

Pan can be found with the Zoom options on the Tools Toolbar.

Toolbars

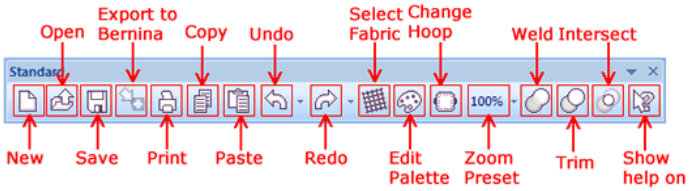
The following customizable Toolbars are available on the screen:

Standard, Align bar, Drawstitch, Tools, Tool Options, Object Properties *«Alt+E»* and *Palette*.

If any of the options or toolbars are not visible, go to *View>Toolbars* and check any option required to be visible.

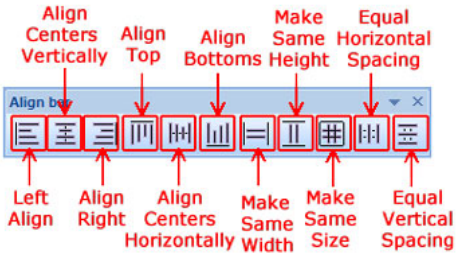
Tip: Customize from the dropdown menu *View>Toolbars>Customize*.

Standard Tool Bar (above the Design Area)

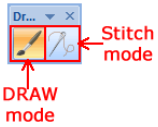


The standard Tool bar is comprised of familiar and frequently used functions

Tip: Move the cursor over the icon to display its name.



Align Tool Bar (above the Design Area)



Drawstitch Tool Bar (above the Design Area)

Used to select working Mode:

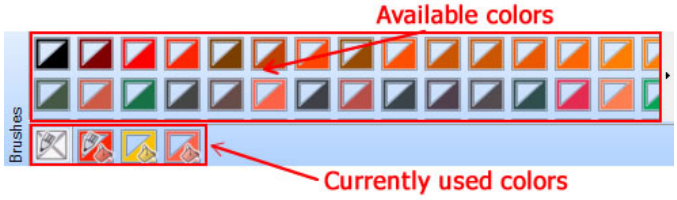
Draw mode is for creating and editing artwork (Default)

Stitch mode is used to convert the artwork to stitches and make color adjustments

Design Area

The large space in the middle of the screen is for creating and editing designs. Multiple designs can be opened at once and are listed as tabs across the top. An asterisk indicates there are unsaved changes on any open design. Move between designs by simply clicking on a tab.

Palette Tool

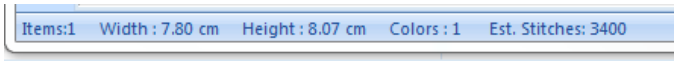


Note: Draw Mode must be active to view the Palette.

The Palette appears at the bottom of the screen, from here, the thread and brush color (if paintwork module is active) can be edited. The Thread palette is on the left and the Brush palette is on the right. The top of the palette contains all available color options; the lower bar indicates the colors used in the design open in the Design Area. Click in the top left corner of a color block to select outline (pencil) and bottom right of the color block to select a fill (bucket). The first color square represents none; if no fill or outline is desired (for example an area that will be filled with crystals), this swatch should be checked.

Status Bar

The status bar is at the bottom of the screen, and displays information about selected objects – width, height, number of stitches and colors.



Customizing the Workspace

The toolbars are docked by default, but can be floated to customize the screen. It is possible to move, resize, dock and auto-hide most of the screen components.

To undock click and drag the toolbar from its default position.

To re-dock double click on the toolbar to dock it in its default location.

To move once undocked, click the title bar and drag it to its new position.

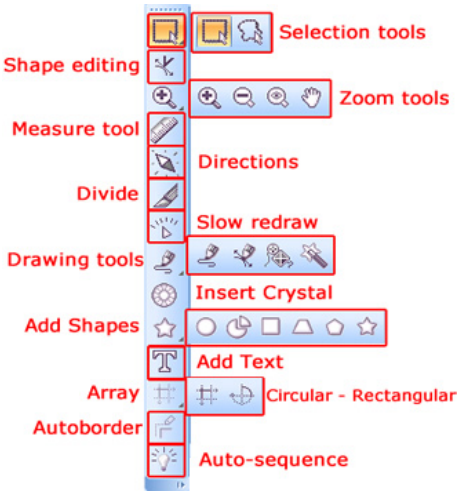
To resize rest the cursor on the toolbar border until the double pointed arrow shows and drag it to the new size.

To close click on the «X» in the upper right corner.

To re-open from the View drop down menu select Toolbar and check desired tool bar.

The Object Properties box may be set to auto hide by clicking on the push pin icon. The dialog box then disappears when it is not in use. Click on the Title to re-open. Click on the pin icon again to maintain the open position.

Note: The Pin icon is horizontally positioned for auto-hide and vertically positioned when the dialog box is docked open.



Tools Toolbar

The Tools Toolbar on the left side of the Design Area includes shortcuts for viewing and designing. Rest the cursor on the icon and the name and brief description of the icon will appear.

A small triangle on the bottom right corner of the icon indicates there are hidden functions. Click and hold the cursor on the icon and the «fly out» menu will appear. Drag the mouse over to select a tool and then it is shown on the toolbar.

Tip: It is possible to hide and customize these icons to suit. Left-click on the arrow at the bottom of the toolbar. Select Tools and select/deselect the tools to customize the Toolbar. To reset, click on the arrow at the bottom of the toolbar, *Add/Remove Buttons>Tools>Reset.*

Rectangle selection

Click on the Rectangle selection icon, «click and drag» over the design area in order to create a rectangle around the objects to be selected. The objects that are entirely inside the rectangle are selected.

Lasso selection

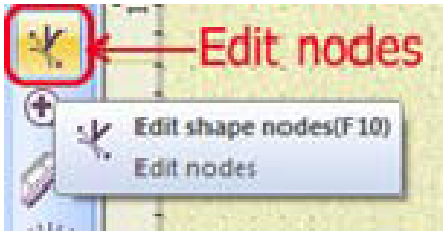
Click on the Lasso Selection icon; it may be necessary to click and hold over the Rectangle Selection icon and then select the Lasso Selection tool from the fly out. Click and drag over the area to be selected, create a polygon shape selection with a lasso. **Tip:** Hold the Alt key while forming the rectangle or lasso area, and the objects that are partially inside the selection are also selected. This is an easier way to select objects which are large or have an irregular shape.

Edit Shape Nodes (F10)

A Node is the starting or connection point of a line or a curve segment. Any movement of a node affects the shape of the line or the curve segment.

There are two kinds of nodes:

- The Smooth nodes which are indicated with small circular icon.
- The Cusp nodes are shown with a small square icon.



Nodes added can be Smooth or Cusp nodes according to the tool used and the design being created. Convert a Smooth node to a Cusp node by activating Edit Nodes, left click on a node to select it and right click on the selected node for a menu of editing options. This makes it easy to change the position of the nodes and their segments, which is the line between two nodes.

Moving an object's segments enables coarse adjustments to the object's shape; while changing the position of its nodes allows fine-tuning of the object shape.

Zoom Tools

Select the Zoom Tools from the Tool Toolbar or select Zoom options on the *main menu>View>Zoom*.

Tip: Quickly zoom in and out of the Design Area using the scroll wheel on an external mouse.

Zoom In

Click and drag a bounding box to select the area to be magnified. Use the mouse wheel to Zoom Out. The cursor will change to a magnifying glass when Zoom is activated.

Zoom Previous (F3)

Return to the previous magnification of the design.

Zoom All (F4)

The entire design is visible on the screen.

Pan (H)

Activate the tool; click on the design and move the mouse to view specific areas of a highly magnified design. Pan is found on the Tools Tool bar.

Tip: Size of design view may set by percentage by selecting the icon from the standard tool bar. Click on the percentage value and select desired percentage from the dropdown menu. Note: Screen must be calibrated for 100% view to reflect size of design accurately. *Select Tool>Options>Monitor.*

Measure (F9)

Activate to calculate the distance between two points. Click and drag from the start point to the end point of the area to be measure; measurement is visible at the end of the curser. Right click to release the measure tool.

Note: When active, the cursor becomes a ruler.

Directions (D)

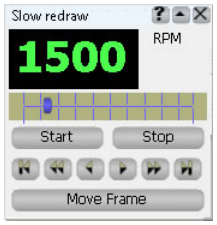
Select to change the direction of Zig Zag and Row-fill paint objects. Select the tool; move the cursor over the object and a red dot will appear, click and drag the red line across the area to be modified.

Divide (Shift+D)

Divide areas of Zig Zag and Row-fill paint objects. Select the Divide icon, and move the cursor over the object. A green dot will appear, click and drag the green line across the area to be divided.

Slow redraw (Shift+F11)

Activate Slow Redraw; move the dialog box to the desired location on the Design Area.

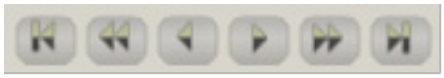


Redraw Speed

Redraw simulation speed can be between 100 and 9900 RPM. Click and drag the slider bar to adjust.

Start & Stop

Use the appropriate button to start or stop the redraw. **Tip:** *Esc* also stops the process.



Move through Objects/Stitches

Use the arrows on the dialog box to quickly move to a specific point in the design as defined below:

- **Design start** To the first stitch of the design.
- **Previous object** Goes to the previous object.
- **Previous stitch** Moves to the previous stitch.
- **Next stitch** Goes to the next stitch.
- **Next object** Moves to the first stitch of the next object.
- **Design end** Goes to the last stitch of the design.

View Options

- **Move Frame**
  Previews the simulation with the frame moving, as it would appear in real embroidery
- **Move Head**
  The head of the embroidery machine moves in the simulation

Note: Slow Redraw simulation includes visual of the corresponding accessory tool used for the object type *(CutWork/PaintWork/CrystalWork or traditional embroidery)* when 3D View is active. Traditional embroidery stitch objects are shown with a standard embroidery foot, CutWork objects are show with the CutWork Tool, Paint objects use a pen for the redraw.

To minimize the Slow Redraw dialog box, click on the middle icon on the title bar.

To close the Slow Redraw dialog box, click on the «X».

Using the Design Tools

Freehand Shapes (F5)

Used for designing simple lines and shapes. Left click to define the starting point of the line, move the mouse to form the line and then right click to specify the end of the line. Continue until the design is completed.

Notes: When creating lines or shapes, it is possible to continue a line by clicking on the end point of the line.

- Create a closed shape by connecting the last node with the first node. A closed shape will be created with fill and outline color.
- If no fill is required set fill color to None.
- Make freehand designs by clicking and dragging the mouse to draw the desired shape.
- Hold the *<Shift key>*down to make the curves smoother.

Smoothness Level can be adjusted in the Tool Option Dialog. The increased number means increased number of nodes creating smoother lines. Right click to end or start a new object.

Bezier Tool (Shift +F5)

The Bezier Tool provides added control over nodes inserted along the shape. Select for more complex design shapes.

Left click to define the first node, move the mouse to the position of the second node to be placed. Continue the shape by moving the mouse to define the next point.

Click and drag while defining the node and the curvature of the segment can be adjusted.

While dragging, the control nodes of the segment are visible to help adjust the curvature.

Release the mouse to confirm the segment added and continue with the next one.

To draw a straight line With the tool active, click on the design area; move to the next position and click again.

Draw a curved line With the tool active, click on the design area; move to the next position, click and drag. Use the control handles to drag the curve as needed.

Draw a closed shape Connect the last node with the first node inserted. It will fill with a shadow to confirm it is a closed shape. Right click to between shapes to keep them as independent objects. Different Object Properties can be applied to each. Creating multiple shapes without a right click to complete each one will keep them grouped; one set of Object Properties may be applies.

Grouped objects can be separated by selecting them and right clicking to select *<Break apart>*from the dialog box.

Create Outline Tool

The Create Outline Tool functionality is based on the Bezier tool. The lines created with the Create Outline Tool are by default, curve based. Alter the curvature of segments by adjusting their control handles.

To draw a curve click on the Design Area. Move the mouse to the desired position of the second node, click and drag to define the second node and adjust the curvature of the segment by moving the control handles of the node. Release the mouse button to confirm.

To draw a straight line hold the *<Shift key>*down, and click. Continue the shape by either inserting straight lines or curves.

Create a closed shape by connecting the last node with the first node. To end the shape, right click once. For line art object right click twice to create separate objects and click only once to keep them grouped.

Grouped objects can separated by selecting them, right clicking and selecting break apart from the dropdown context menu.

After inserting a node, select the *<Shift key>*and the last node can be moved.

Individual nodes can be edited. To adjust a node first select it then move, adjust, or delete as desired. Click on a line to insert a new node.

With these tools it is useful to create holes inside shapes e.g. if creating a wheel shape, draw the outer circle and then draw the inner smaller circle. A hole will be created inside the bigger circle. This functionality is very helpful when drawing shapes over an image backdrop.

Magic Wand

The **Magic Wand** tool creates any shape that consists of the intersection of two or more other shapes. It is a very useful tool that can help you create strange shapes easily.

In order to use this tool there have to be already some designs that overlap. Activate the Magic Wand tool by selecting it from the Tools toolbar, position it over the area where the objects are intersecting or overlapping and click on it to create it. The tool will create an object identical with the intersection area of the overlapping objects that can be moved elsewhere by clicking and dragging it. Continue creating shapes by clicking on the area required to be converted into an object. To stop using the Magic Wand tool, right click with the mouse and the software will switch to the Selection rectangle mode.

Insert Shapes

Several shapes are available to quickly create shapes. Click on the Insert shapes icon to select.

- Ellipse Tool (F7), Rectangles (F6), Pies (Ctrl +F7), Trapezoids/Parallelograms (Ctrl+F6).
- Polygons (Y) and Stars (S)

Select a specific shape by clicking on the visible shape and moving the cursor to the desired shape on the fly out bar.

The selected designing tool will become the active one and may be used to insert the specific shape on the working area.

To create a shape on the Design Area, select the shape then click and drag to form the shape. Release the mouse to complete the shape.

Special Keys

- Delete as many nodes as desired by pressing the *<Backspace bar>*.
- Hold *<Ctrl key>*and guidelines will appear on every 22.5 degrees.
- Hold the *<Alt key>*vertical and horizontal guidelines will appear on X and Y axis.
- Hold the *<Shift key>*while drawing a shape, the shape generates from the center point.

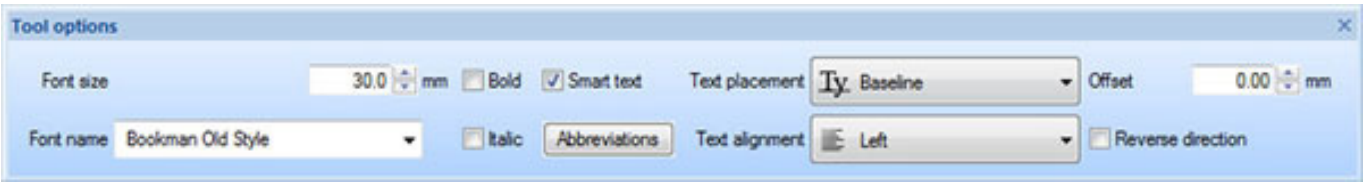
Advanced

Multiple key commands may be used. For example, by holding both *<Ctrl>+ <Shift>*key pressed while creating, the center of the shape will be the point from where drawing the shape started (as well as the center of the guidelines).

Further edit the shape with Node Editing. Select the shape, select Edit Shape Node from the Tools Toolbar.

Edit Text (F8)

Select the Edit Text tool, position the cursor in the design area where the text is required and type the letters.



To change the font, select from the drop down menu in the tool options bar or highlight the font and scroll down with the cursor to select the desired font. A preview will appear in the design area.

In the Tool options bar it is also possible to change the size of the text and make it bold or italic.

Edit the text by selecting (a contrasting shade indicates selection); position the cursor (a thin white line) where additional lettering will be added. Position the cursor to the left of text or lettering to be deleted.

The selected text can be also copied, cut and deleted by selecting the respective options from the right click menu.

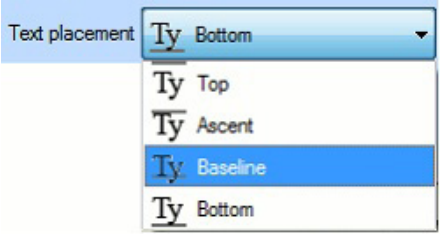
Creating Text on a Baseline

- Create the text object.
- Create the curve object to be used as path.
- Select both objects and right click and select Apply path option from the menu of options.

Apply path option is only available for text objects. If a text object is converted into curves it cannot be placed on path.

Edit text on a path

- Select the object and activate Text tool (F8) to edit the text.
- Change the Text placement, the Text alignment, the Offset and the Direction of the text on the path.



Text placement

- Change the text placement by selecting any of the four text positions from the Text placement drop down menu of the tool options toolbar.

The four options define the position of the Text on path.

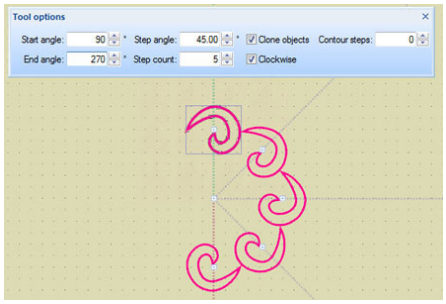
Array Tools

Using the Array tools it is possible to create Rectangular or Circular arrays. The array creates copies of one or more objects and places them in a patterned way (Circular - Rectangular). Select one or more objects and with array tool, multiply them along the design area and create unique formations.

Select Rectangular and Circular array icons from the Tools toolbar

An object or objects must be selected to activate array. Select the desired object(s), select the array icon. A preview of the array placement will appear. Customize the array; confirm the placement by clicking on the Apply Array option in the dialog box on the workspace.

The array hasn't been applied until Apply array button is selected in the Circular/ rectangular array Box.



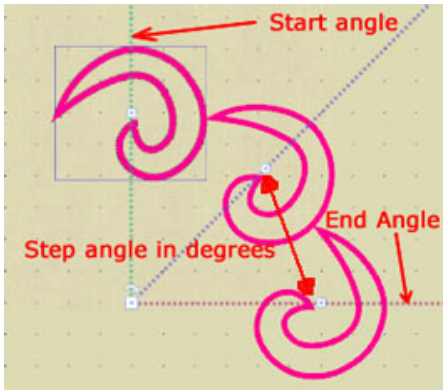
Customizing Circular Array

Editing can be done on the screen or by using Tool options

Select Start - End angle specify where the copies of the selected object(s) will be placed on the arc/circle. This can be changed in the design area by clicking on the box on the object on the red line to make the array smaller or larger

Step angle specify the angle step (degrees) that each copy of the circular array will be placed on. This can be changed on in the design area by clicking on the box and dragging the shape on the green line to create more or less space between the angles

Step count specify the number of copies to be placed in the circular array, between the specified start-end angles.

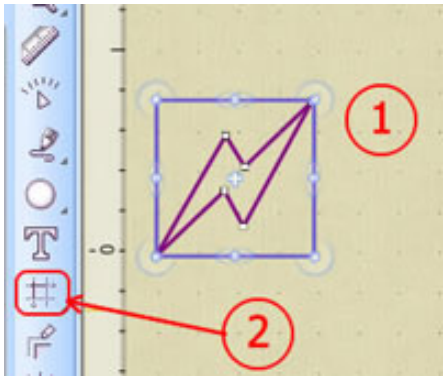


Clockwise specify if circular array is to be created clockwise or anticlockwise.

Clone objects if possible If this option is enabled, the copies of the original object will also be clones. This means that they are reshaped together by simply reshaping one of them.

Contour steps creates a new clone object around the present object Contour lines are evenly spaced concentric lines on the outside border of a circular array.

Using this option, select the number of the added contour lines. This way the circular array can be repeated.

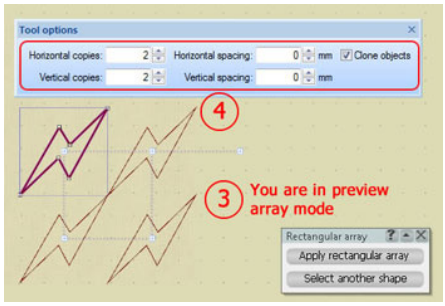


Customizing Rectangular Array Rectangular array tool creates copies that are positioned in a rectangular arrangement. There are several methods in the Tool Options bar to customize the arrangement.

Number of Horizontal and Vertical Copies specify the number of copies desired, these are positioned on the horizontal and vertical axis.

Horizontal and Vertical spacing to specify the distance between the horizontal and the vertical copies within the array that will be created.

Clone objects If this option is enabled, the copies of the original object will be clones. The clones may be reshaped as a group or independently. Adjust the properties of the array using the various handles that appear in preview array mode.



Once array is applied it is possible to edit by selecting one or more clones and working with the Tool Options or directly on the Design Area with the handles.

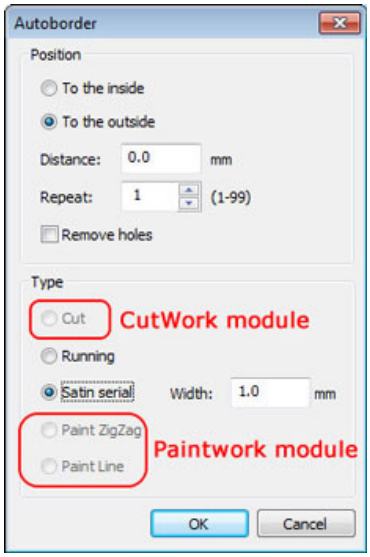
- Change the orientation of the copies.
- Adjust number of copies.
- Mirror copies.
- Change the distance between copies.
- Move the array.
- Rotate the array.

Auto Border

Add one or more repeats of an automatically created border, using a Running, Satin or Cut border around the selected object(s).

Options specific to a module are only available if that module has been purchased/ activated (CutWork is only available if the CutWork module has been purchased and activated).

To activate the tool, select the object(s) that you wish to apply the auto border around.



› Select the Auto border icon that is located on tools toolbar.

› or, select the object and right click to open.

› Select Auto Border from the available options.

› or, select the Auto border option in the Tools menu.

Auto border dialog box Define the Stitch type and the Position of border and number of repeats.

Position of border Set location of the border of the object. In the field, enter the distance the borders should be positioned from the object. Note: The value is set in millimeters and defines the distance between the default position of the first border and subsequent borders.

Number of repeats Define the number of repeats for the auto border.

Stitch type Select the stitch type desired for the Auto border from the list in the dialog box.

Make desired adjustments and click OK to generate the borders.

The Auto border objects may be edited using the Object properties toolbar.

Auto Sequence Control

With BERNINA DesignWorks it is possible to edit the stitching sequence of the design. Select from two modes: one with the Auto-sequence enabled or one with the Autosequence disabled. These two modes affect the way the embroidery sequence is applied on the design.

With the Auto-sequence enabled:

When a vector image is converted into an embroidery design the software selects an effective embroidery sequence. The final embroidery sequence can be viewed in the Printout or by activating the Slow redraw function. Changes may be desired to optimize the design for special effects. This can be done from the Sequence option found in the Object properties toolbar, and by re-ordering the objects from the Sequence manager bar.

Tools when Right Clicking

Conveniently access frequently used functions by right clicking on objects within a design:

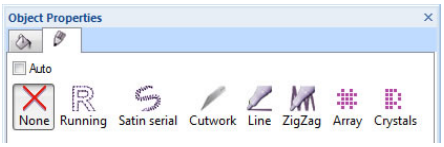
- **Group** selected objects are treated as one unit for editing but retain individual layers
- **Ungroup** separates the grouped objects back to independent objects
- **Combine** groups a series of objects onto the same layer; useful for combining colors or effects together.
- **Break apart** Separates a group of objects to separate layers.

Object Properties (Alt + enter)

Typically located to the right of the design area, Object Properties is visible when an object is selected. Includes two tabs:

- Outline
- Fill

It is possible to change the parameters of each object in a design; the part must first be selected to be edited.

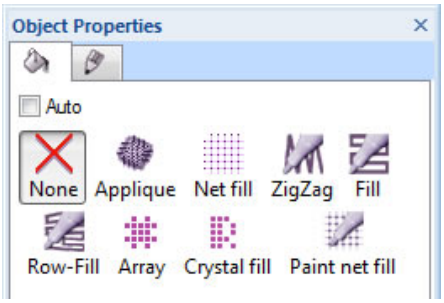


Outline

The following Outline object properties are available for each of the DesignWork Tools:

- **CutWork** Running Satin Serial, Cutwork, Array
- **PaintWork** Running, Satin Serial, Line, ZigZag
- **CrystalWork** Running Satin Serial, Array, Crystals

If a module is not activated, the properties will not be visible.



Fill

The following Fill object properties are available for each of the DesignWork Tools:

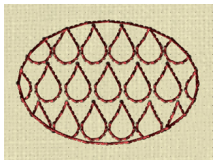
- **CutWork** Applique, Netfill, Array
- **PaintWork** Applique Netfill, ZigZag, Fill, Row Fill, Array, Paint net fill.
- **CrystalWork** Applique, Netfill, Array, Crystal Fill

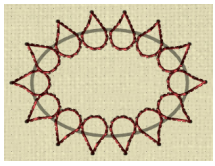
Array

The Array is a fill type that uses a base object or a clipart item to create an area fill or an outline fill using the base object. When applying Array fill, a pattern grid is created and copies of the base object are placed on the grid to create a custom fill.

For example the shape on the left is used as a base object. Using the base object Array is applied to the fill area of the circle (middle diagram), and to the outline of the same circle (right diagram). Using Array (Fill or Outline) you can create amazing effects.

Select *<Array>*and the Clipart dialog appears. Select a clipart and insert. By releasing the mouse it will be applied as array as a fill or an outline depending on what is selected in object properties menu.





To create custom clipart shapes:

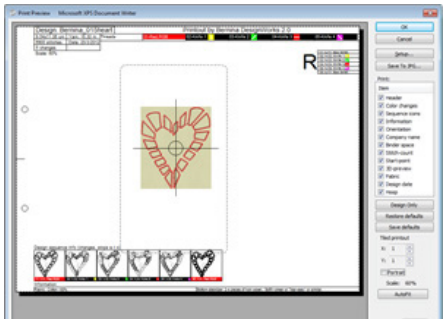
› Select one or more objects drawn with the Create Outline Tool

› *Tools>Clipart Library>Create clipart.*

› The cursor turns into a cross.

› Click and drag to specify a reference line.

› Type a name and the clipart item has been added.



To print a design

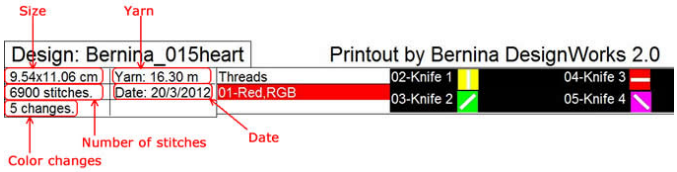
BERNINA DesignWorks provides extensive options for printing designs. The printout of the design is very useful for producing the design correctly.

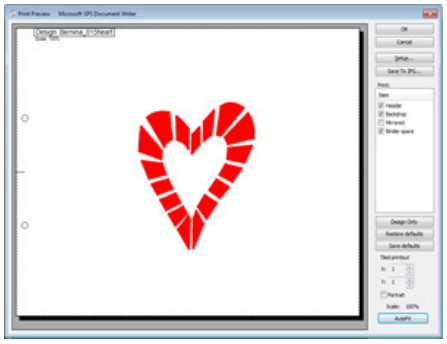
To print a design from your screen, press the print icon on the standard toolbar or from the menu *File>Print* or press the *<Ctrl + P>*shortcut keys from the keyboard.

Header

The header is at the top of the page, showing the size, color changes, number of stitches, quantity of thread needed, the colors of the design, and their position and Knife needed to select during cutwork.

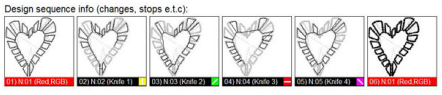
The menu on the right offers a variety of options for customizing the printout:





- **Setup** elect and customize the printer properties
- **Save to JPG** creates a graphic image of the print file
- **Print** check items on the list to include on the print out, note several are selected by default and may be deselected by removing the check
- **Save defaults** click to save customized printing choices as the default for future printing
- **Tiled printout** customize some aspects of the print such as number of pages to tile, orientation and scale.

The sequence icons are at the bottom of the page. They show parts of the design split with a special function like color change, appliqué, or stop. Also in the bottom of the icon view the name of the color that should be used, plus comments.



Information

Included at the bottom of the page. The information area lists any extra information to be viewed on the printout. This information is added to the file by selecting *File>Design Properties>General*.

To automatically restore the parameters indicated at the beginning of this process click on the AutoFit tab. If the design requires multiple pages, print, cut the border of the page as marked, and tape together to view the complete design printout.

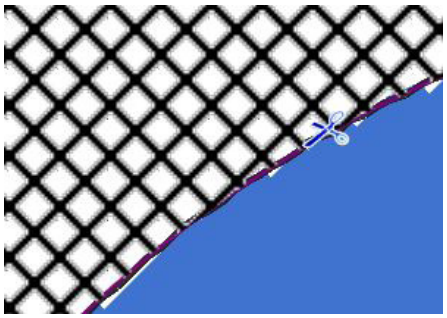
CutWork

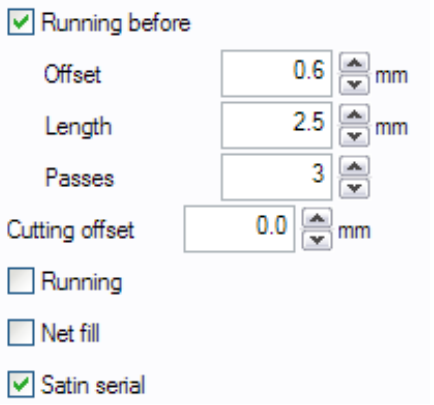
Options

The CutWork option may be applied to objects that include an outline. To apply cutwork to a specific object from within the full DesignWorks Software Suite, select it and then select the Cutwork option from the Outline tab in Object Properties. If CutWork is the only product level activated/purchased, a Running Stitch will be applied as the default stitch type. If PaintWork is also activated then the paint fill is default.

When Cutwork is applied, the object is filled inside or outside with a net that highlights the area that will be cut out. (This can be set in the Object Properties Toolbar). This net fill does not include stitches; it is a visual indicator to help identify where the Cutwork will be applied. When the cursor is on an object that contains cutwork, a scissors graphic will appear on the outline to indicate this object is going to be cut.

The following can be adjusted, in order to create the cutwork design:





Running before

With this option, specify the number of running stitched desired before applying the cutwork. This is done to stabilize the fabric and produces a better finished traditional cutwork designs. A setting of 3 - 5 running passes with different offsets is sufficient for most applications.

Offset

In the Offset value field, enter the desired distance between rows. Note, the default value is 0; the offset values range of -9mm to 9mm. Increase or decrease the offset value by clicking on the arrows next to the value or by typing directly into the offset value box. The value set defines the distance between the running stitch and the outline. A positive value positions the running line outside the outline, a negative value positions the running line inside the outline object. Any changes made to the offset value they are automatically previewed on the design and confirmed by pressing the Enter key on the keyboard.

Offsetting the running stitches creates a stay-stitching effect resulting in a cleaner cut.

Length

In the Length numeric field enter the stitch length desired for the running stitches. Note stitch length scale of .8mm - 99.9mm. Adjust length by clicking the arrows next to the value or typing into the Length value box. Changes are instantly previewed on the design area and confirmed by clicking the Enter key on the keyboard.

Passes

Set the number of Running Passes between 1-9 if desired to stabilize the fabric. Changes in the Passes value are visible when the design is simulated with the Slow redraw function from the tools toolbar.

Styles

The Styles area contains all the stitch types that can be applied to the Running option.

By applying different styles it is possible to create very nice decoration for CutWork, especially appliqué.

Running Styles

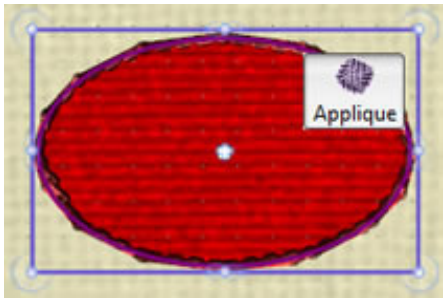
Select the style preferred by clicking on it. The selected style is previewed in the design area.

By clicking <None>, no style will be applied.

There are over 540 styles available to produce unique designs. The styles that include the film icon (for example 176 or 177) are a combination of different styles in one

CutWork with Fill

If no fill is required then select <None>



Appliqué

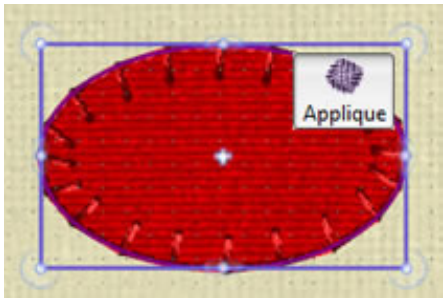
Found in the fill Tab on the object properties dialog box, it automatically sets the fill area as Appliqué.

The select area will be filled with a visual representation of a fabric in the color used to create the object. If the object does not have a border, an E-Stitch (blanket stitch) will be generated to secure the appliqué shape to the base fabric. For objects with a border, the cover stitch may be selected from the set a running styles or satin serial stitches included in the stitch menu.

Note: Machine embroidered appliqué designs require a set series of commands for simplicity in stitching the design.

- *1. The machine first stitches the placement lines to indicate where the appliqué should be positioned on the base fabric.*
- *2. The machine stops, the appliqué fabric is place on the hooped base fabric.*
- *3. The machine sews running stitches over the appliqué fabric, outlining the appliqué shape. The machine stops, the excess fabric should be trimmed away from the running line.*

  Note Appliqué shapes may be pre-cut by creating a cutwork file to correspond to the appliqué shape. For designs created with CutWork Applique shapes. In the case the shapes are precut, this is done as a separate design file, shapes should be cut prior to Step 1. The running stitches in step 3 should have a negative offset value to secure the precut shapes in place prior to the final stitching in step 4.
- *4. The machine stitches the final cover stitching to secure the appliqué shape to the base fabric.*



Preview the stitching process by selecting the **Slow redraw** option from the tools toolbar.

Applique objects may be fine-tuned using the options in the Object Properties dialog box.

Changes to Cleaning, Default fixing, Default fixing Position and Offset properties can be applied.

Note: that not all parameters may be altered for all stitch types.

Cleaning

Altering the Method for cutting and embroidering the Appliqué

After embroidery

- A running stitch for placement of the appliqué is stitched on the base fabric.
- Machine stops so that appliqué fabric can be positioned over the stitched placement line.
- The cover stitch is stitched.

› Cut around the appliqué with scissors.

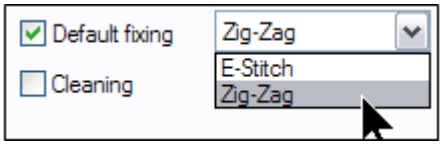
During embroidery (default)

- A running stitch for placement of the appliqué is stitched on the base fabric.
- Machine stops so that appliqué fabric can be positioned over the stitched placement line.
- A running stitch is embroidered over the appliqué fabric.
- Machine stops so that the appliqué fabric can be trimmed around the running stitch.
- The cover stitch is stitched.

Laser cut (use this method when the cutwork file has been created for the shape)

Note: Appliqué shapes are cut first as a separate design file.

- A running stitch for placement of the appliqué is stitched on the base fabric.
- Machine stops so that appliqué shape can be positioned over the stitched placement line.
- The cover stitch is stitched.

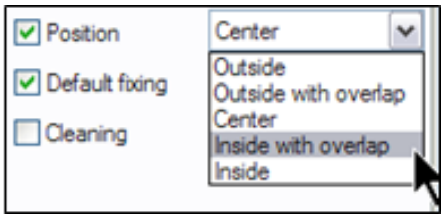


Default Fixing + Position

With this option, cover stitches will be the same color as defined for the fill area.

› Select *<Default Fixing>* select zigzag stitch to open the Position option.

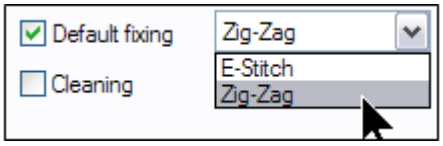
› Select from the five position options.



Offset

Defines the distance the cover stitches will be from the initial position.

The default offset is zero, offset range value from –15mm to +15mm.



Sequence

› Select *<Auto Sequence>*, the Sequence option becomes available in the Object Properties box.

› Change the embroidery sequence from the options available.
– *The default is Auto; the software defines the sequence.*
– *To start moves the selected object to the start of the design.*
– *To end moves it to the end of the design.*

CutWork Exercises

If only the CutWork module is activated then the default palette is thread.

If the PaintWork module is also activated then the default is paint. Please select none to de-select paint fill not required.

Please note the following for all Exercises

It is recommended to open a folder called Mastery to save all exercised for further use.

The following path is followed to access designs on the different operating systems

XP *C>Documents & Settings>All Users>Documents>BERNINA Design-Works>*

Vista *C>Users>Public Documents>BERNINA DesignWorks>*

Windows 7/8 *Libraries>Documents>BERNINA DesignWorks>*

The exercises in this Mastery are based on Windows 7

› A fabric will not be chosen, however if a specific fabric is required for the exercise select when necessary.

› Use the *Medium Hoop and foot #44C*

Exporting a CutWork only design for Cutting and Stitching

- Opening an existing design
- Exporting it to the machine

Opening an existing design

› Open the DesignWorks software
<Open existing>Browse>Library>Documents>BERNINA DesignWorks Samples>CutWork>

Exporting it to the machine

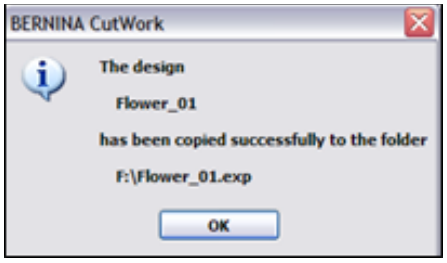
› To export a design to the machine, click on the Export icon.
– *A dialog box will open to choose the type of connection required.*

› Choose the USB connection for artista embroidery machines (630, 640, 730, updated 200), or 580, 750, 780 or 830.

› Choose the Deco box to send the stitch file to a Deco 340.

› Choose the Direct Connection section for aurora embroidery machines (430, 440, or 450).
– *A message will appear that the design has been successfully sent.*

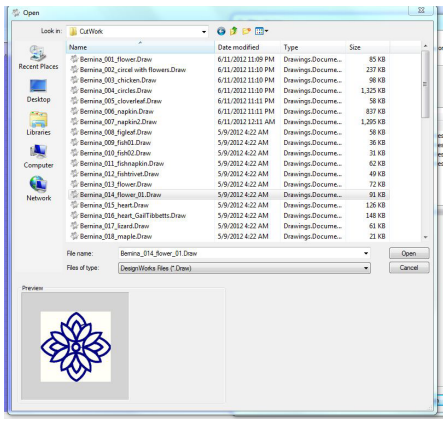
› Close the window by clicking OK.



Editing an existing CutWork with Embroidery Design

- Opening an existing design
- Sequence Manager
- Slow redraw

Opening an existing design



› Open the DesignWorks software
>Open existing>Browse>Library>Documents>BERNINA DesignWorks Samples>CutWork>014 Flower_01.draw.>Open
– *The layers of the design are visible in the Sequence Manager.*

Note: If the Sequence Manager is not visible, go to the *View menu>Sequence Manager*.

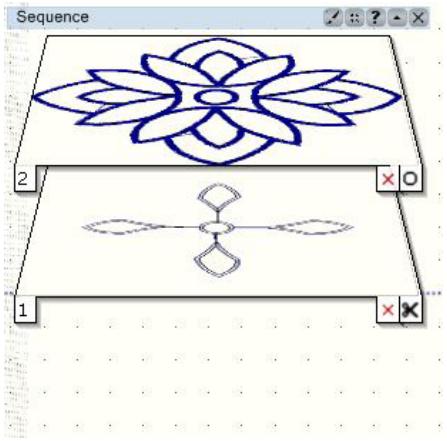
- The first layer of the design will be the CutWork portion of the design.
- The second layer is the satin stitch.

Note: the icons on the right-hand corner of the layers in the Sequence Manager.

The scissors represent CutWork. The icon on layer 2 indicates a sewn area.

From the View Menu select 3D preview. Activate Slow Redraw and view the stitch out of the CutWork design.

Note: the areas of the design stitched and those completed with the CutWork tool. Close Slow Redraw by clicking on the small red X in the upper right corner of the Slow Redraw Dialog.

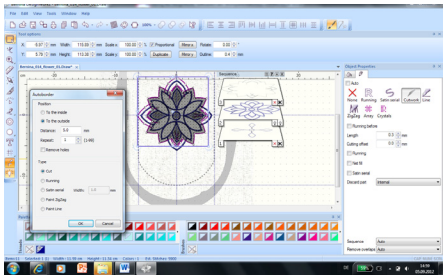


› Select layer 1 of the design by clicking on the layer in the Sequence Manager.

› Select the Auto border tool with a left click.
Select>To the outside>Distance of 2mm>Repeat>1>Type -Running.

This technique can be used to add a decorative element or stability to a design which is what is required here to stabilize the fabric before cutting.

Before sending the design to the machine, watch a virtual stitch out by clicking on the Slow Redraw icon.



Tip: When working with a traditional CutWork design, starch the fabric and use a heavy weight tear away stabilizer.

Adding CutWork to an existing Embroidery Design

Opening a design and selecting a Hoop

- Altering the Design
- Create Shapes Tool and adding CutWork
- Working with the Sequence Manager

Opening the Design

› *File>New>Select a fabric type and color; next>*

› From the Artwork Source dialog box, select *From Embroidery>Browse*

› From the DesignWorks Samples Folder, select *CDW0191.ngs>Open*

› From the Hoop selection drop down, choose *BERNINA 130 x100 Medium #26>Next*

› From the Colors Reduction window, select *Ackermann Isacord* from the Thread Palette drop down menu; *Finish*.

Altering the design

› From the *View Menu,* select *Toolbars, Tool Options*.

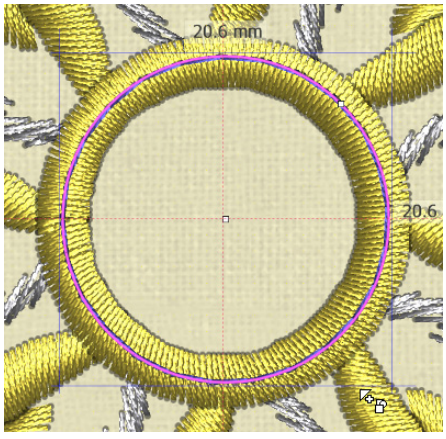
› *Edit>Select All* or *<Right Click>Select All* to select the entire design.

› Select *Proportional* in *Tool Options*

› Change the Scale % of either the width or height to 200%, Press Enter.

› Click on one of the eyes, hold down the Shift key; select the remaining eye, nose, and mouth.

› Press the Delete key.



Using the Create Shapes Tool

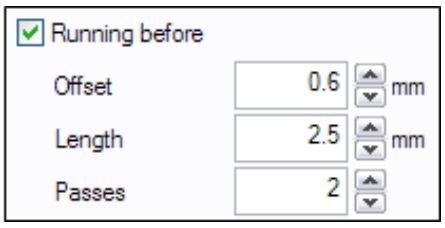
› Select Ellipse tool.
If not visible on the Toolbar, rest the cursor on the black triangle in the corner of the visible shape and drag the mouse to select the Ellipse shape.

› Click in the center of the design; hold both the *<Ctrl + Shift>*to draw a perfect circle within the circle in the center of the design.

› When the circle is about half way into the satin stitch of the center, release the mouse; then release *<Ctrl + Shift>*.

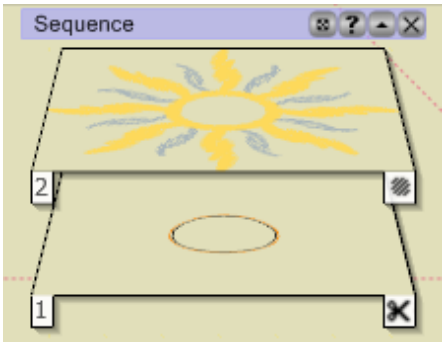
› Right click to de-activate the shape tool.

› Adjust the size and position of the new Ellipse if necessary.



Adding CutWork

- Make sure that Object Properties dialog box is visible. *View>Toolbars>Object Properties*
- Select the Ellipse and the Outline tab in the Object Properties box.
- Select *CutWork>Fill*
- Place a check mark in front of *<Running Before>*in Object Properties.
- Highlight the Offset value; change the offset to. 6mm.
- Use the up arrow to change the number of passes to 2.



Changing the Sequence

- If the Sequence Manager is not visible, go to View>*Sequence Manager*.
- Notice that the embroidery design is stitching before the cutwork. The cutwork layer needs to be done first.
- Select the CutWork layer and drag it into position one (the bottom tray).

Saving the Design and Sending to the Machine

- Select *File>Save As*
- Navigate to the desired folder. Name the file *<CutWork Added>*
- Click *<Save>*
- Export the file to the machine of choice for cutting and stitching.
- Close the file by clicking on the «X» by the file name on the tab of the design area.

Converting a vector graphic into a Cutwork Design.

- Working with a vector graphic
- Deleting colors
- Changing outlines
- Auto Border

Opening the Vector

› *File>New>Next*

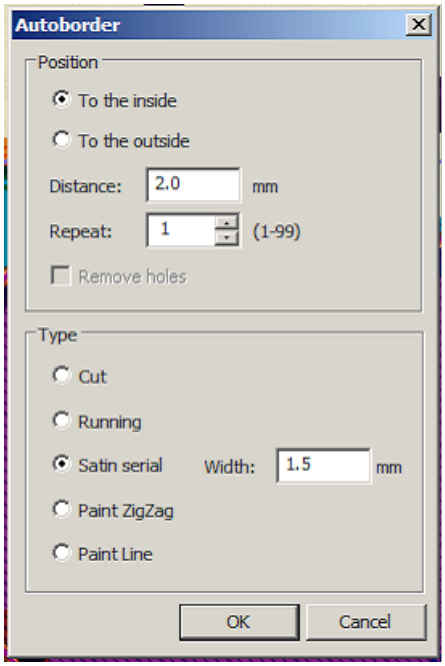
› Select a fabric type and color.

› From *File>Browse*

› Select *My Documents>BERNINA CutWork Samples>ASC-00143.cmx>Open*

› From the hoop choices, select *BERNINA 130 x100 Medium #26>Next*

› From the Colors Reduction window, select *Ackermann Isacord from the Thread Palette drop down menu; Finish*
Note: Default for the full DesignWorks program is for the Vector image to be converted to Paint. The instructions below assume both the Paint and CutWork options are enabled.



Deleting Colors

› Zoom in on the design so that it fills the workspace.

› Select the orange moon face, press the delete key.

› Select the turquoise detail remaining in the center; press the delete key.

› Right click on the white color chip in the Brushes Used Palette.

› Select *<Select By>*and choose Fill Color

› From the Edit Menu, select Delete.

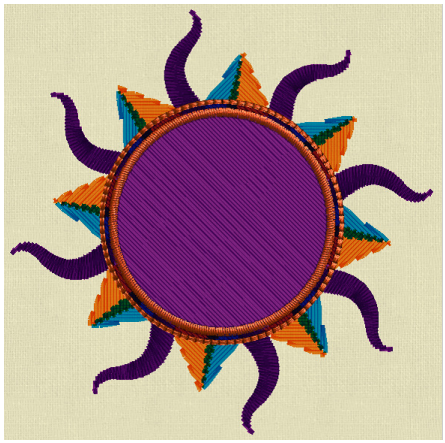
Changing the Outline Stitch

› Select the circle object that forms the center of the design.

› Select a fill color from the palette.
Note: be sure to click in the lower right corner of the color selected to fill.

› Select an outline color from the palette. (Note: be sure to click in the upper left corner of the color selected to outline).

› In *Object Properties>Outline*, select *Running and stitch #81*.
Note: if Object Properties are not visible, from the View Menu, select *Toolbars>Object Properties*.

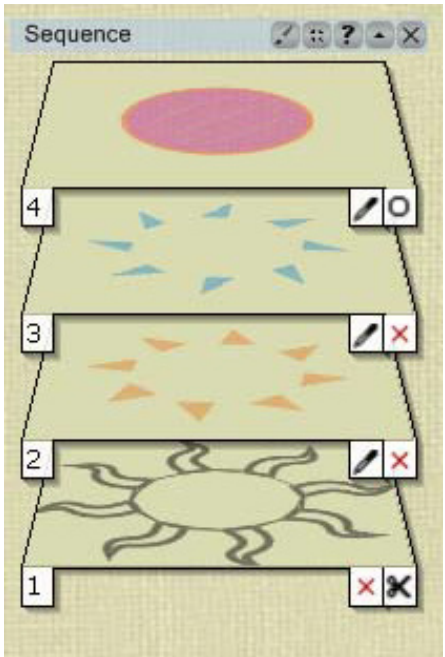


Auto Border

- With the new outline object still selected, activate Auto Border (Tools Toolbar)
- Select To the inside.
- Set the distance to 2mm.
- Select Satin Serial for the type; width of 1.5
- Click OK.

Altering CutWork Properties

- Right click on one of the dark purple rays to select, hold down the Shift key and select the remaining dark purple rays.
- Activate *<Auto border>*(Tools Toolbar).
- Select To the *Outside>Distance – 1>Type - Cut>OK*.
- With the cutwork rays selected, in the Object Properties box, select Running Before.
- Change the offset to 6mm.
  – *A positive offset sets the running stitch to the outside of the cut area.*
- Change the number of passes to 3.
- Select Satin Serial.
- In Tool Options, change the Outline to 2mm>*Enter*.
  – *This will increase the width of the satin stitch.* ***Note:*** *if the Tool Options are not visible, from the View Menu, select Toolbars>Tool Options*



- Right click on the purple color chip in the *Brushes Used palette>Select By>Fill Color.* From the Edit menu, select delete to remove the Paint objects.

Sequencing the Design

- Notice the layers in Sequence Manager
  Note: if the Sequence Manager is not visible, from the View Menu, select *Sequence Manager*
- Click and drag the cutwork layer down into position 1.
- Select *Auto Sequence>None>OK*
- Right click on the orange color chip in the *Brushes Used Palette>Select By>Fill Color.*
- All the small orange rays are selected, right click within the selection rectangle and select *<Combine>*.
  Note: the group forms one layer in the Sequence Manager.
- Repeat for the turquoise color chip.
- Activate *<Auto Sequence>*(click on the icon in the Tools Toolbar); all the colors combine in the first layer.

Saving the Design + Sending to the Machine

› Select *File>Save As*

› Navigate to the folder where the design will be saved.

› In the File Name, name the file, Vector to *Cutwork.draw*

› Click on *<Save>*

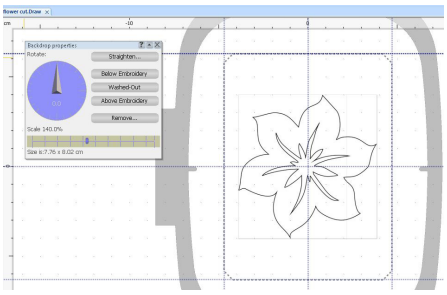
› Export the file to the machine of choice for cutting and stitching.

› Close the file by clicking on the «X» by the file name on the tab of the design area.

Creating a shape and add CutWork manually

This exercise is also available as a video clip www.bernina.com/DesignWorks

- Preparing artwork
- Preparing the workspace
- Manual digitizing



Preparing the artwork

› With the DesignWorks software open, click *New>Select fabric type - Cotton 2>Next*

› From *File>Browse>Library>Documents>BERNINA DesignWorks>Training>Flower.jpg file*

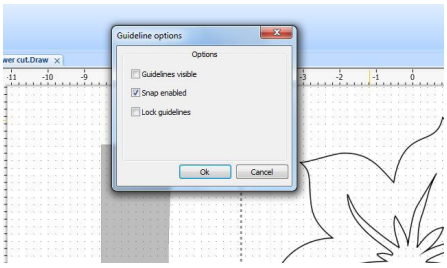
› Select *medium hoop for presser foot #44C>Next*

› Open as Backdrop>*Finish*.

› From the menu bar select *View>Backdrop>Properties.*

› Scale design up to 140% Close Backdrop Properties Dialog Box.

› *File>Save Design as>navigate* to the folder in which the design is to be stored, rename- Flower Cut and save.



Preparing the Workspace

› Right-click on the ruler above the design area.
Note: if rulers are not visible, from the main menu, select *View>Rulers*.

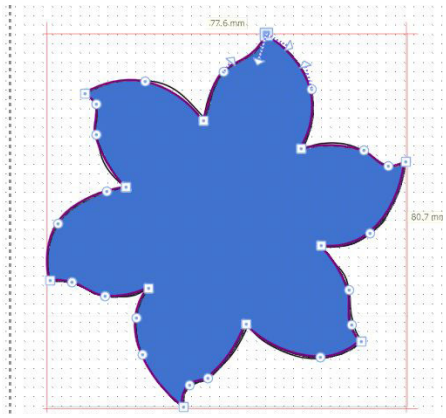
› Select>*Guideline options*

› Uncheck>*Guidelines visible*.

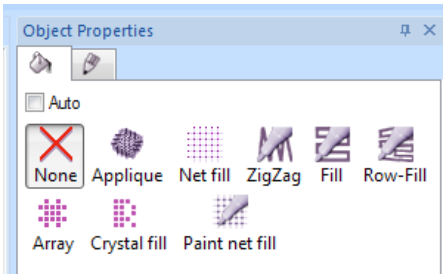
› Check>*Snap enabled*.

› Click *OK*.

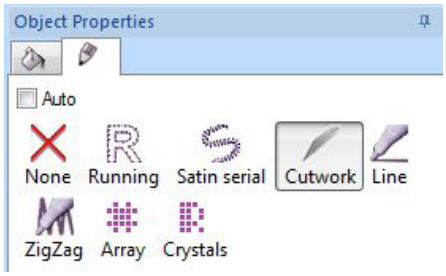
Manual Digitizing



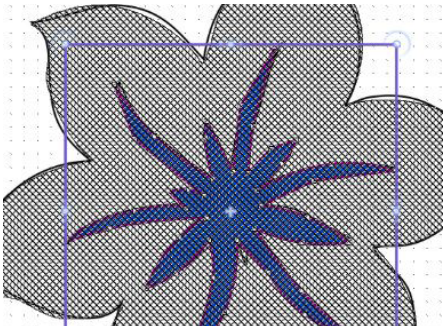
- Zoom in using the wheel on the mouse or the zoom options on the Icon Toolbar.
- From the Tools Toolbar, select *<Create outline>*and click around shape
  Left Click = Curve
  Left Click + <Shift>= Corner
  Tip: Use «Backspace» to delete last point
- To complete the object, click on first point.
  To fine tune the shape of the object activate Edit nodes (Tools Toolbar).
- Select Rectangle selection.
- Remove the fill by selecting *<None>*in Object Properties
  Note: If object properties are not visible, from the main menu *select View>Toolbars>Object Properties*

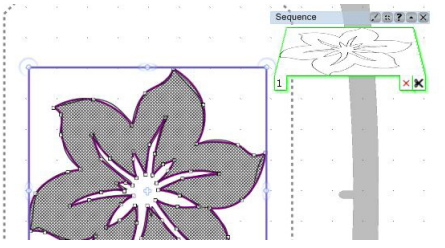


- Change outline to CutWork line.
- Select the Create Outline tool to digitize the inner part of the flower.
- Select Rectangle selection.
- Change the inner part of the flower into a CutWork line.
- Remove the fill by selecting *<None>*in Object Properties.
- While the center is still selected, hold down the *<Shift key>*and select the outside of the flower.



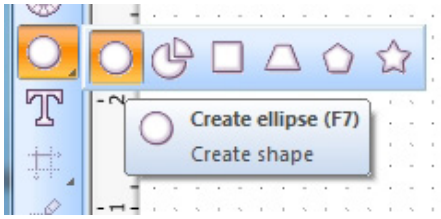
- Right-click the empty space and *<Combine>*the individual objects.
- *<Save>*
- Export design to USB stick for cutting on the embroidery machine.
  – *The design will be converted into an .exp format automatically.*





CutWork Border Design

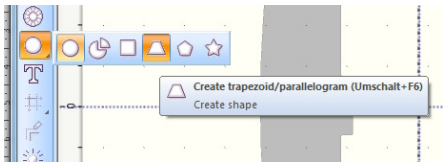
- Working with Create shape tools
- Circular array
- Horizontal and vertical alignment
- Sequence Manager
- Tips for sewing Out



› *New>Select Fabric type and color>Next>New Graphic, Hoop-BERNINA Large Oval 255x145, #44C>Finish*.

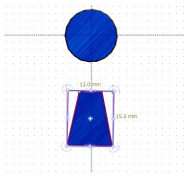
› Select *Create Shape>Ellipse*.

› Hold down *<Ctrl+shift>*key and create a circle; right click to deactivate tool.



› Adjust size in Tool Options, select proportional and 15mm width. **Note:** if Tool options are not available, from the main menu, select *View>Toolbars>Tool Options*.

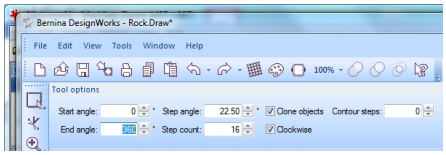
› Select *Manage Hoop Options>Center Design to Hoop*.



› *Create Shape>*click on the triangle in the corner of the icon to view the shape options.

› Select the trapezoid shape and place one below the circle.

› Select *View>Guidelines* to assist with positioning.

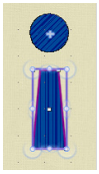


› Right click to deactivate the Create Shape tool.

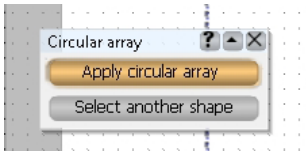
› Select the trapezoid, adjust size in Tool options by deselecting Proportional and entering a height of 15.6, width of 13.

› Adjust positioning so that the trapezoid is centered 73cm below the circle's outline (use the Measuring tool on the Tools Toolbar)

Apply Circular Array



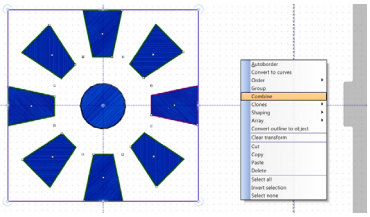
› While the trapezoid is still selected, activate Circular array.
Note: the pivot point/center point of the array combination is defaulted to the center of the hoop.



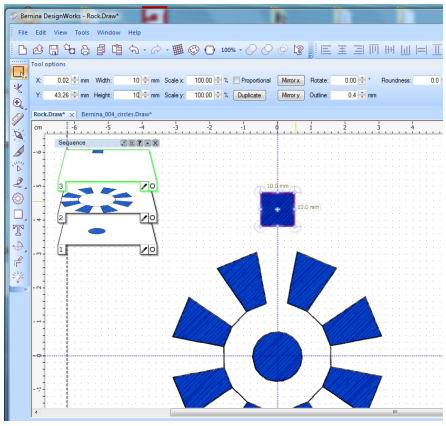
In Tool Options make the following adjustments:

- Start angle: 0°
- End angle: 360°
- Step count: 8

› Select *Apply circular array*

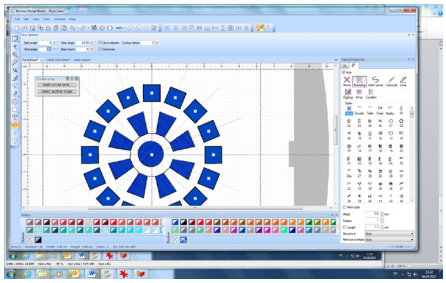


› While all the Trapezoid shapes are active, right click>*combine*. In Tool Options, rotate the combination 22.5°. Click away to deselect.



› Create Shape>click on the triangle in the corner of the icon to view the shape options. Select the rectangle shape and create one at the top of the design.

› Right click to deactivate the Create Shape tool. Select the rectangle; in *Tool Options>deselecting Proportional>*entering a height and width of 10mm. Position 5cm away from tip of trapezoid.



› With the new shape selected, activate Circular array; adjust the settings in *Tool Options*:

- Start angle: 0°
- End angle: 360°
- Step count: 16

› Apply circular array. While all the rectangle shapes are active, right mouse click>*combine*. Click away to deselect.

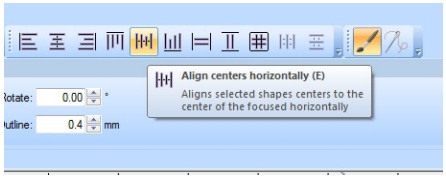
› Create another small rectangle just above the last one created.
Position .5mm from the previous row

› *Tool Properties>Proportional deselected>10mm width>7mm height*

› Select Circular array; adjust the settings in *Tool Options>*

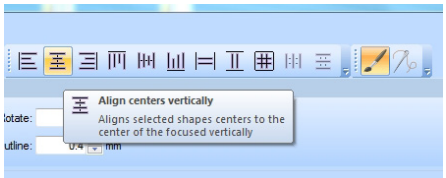
- Start angle: 0°
- End angle: 360°
- Total objects: 16

While the arrayed objects are selected, right click and combine.

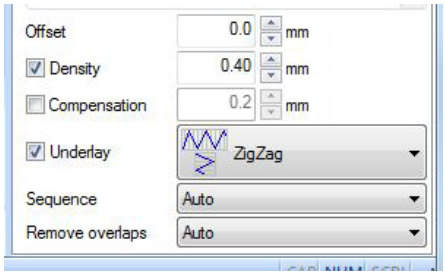


› Select all *<Ctrl + A>*, apply horizontal and vertical alignment.

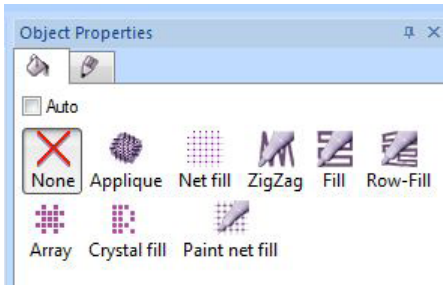
› While the objects are selected, right click and *<combine>*.



› From *Tool Options>Duplicate*



- The second layer is automatically active. *Tool options>Outline* = 1.7mm
- *Object Properties>Outline>Satin Serial>Density -0.40>Underlay- zigzag.*
- *Object Properties>Fill -None.*



- Select Layer 1 from the Sequence Manager.
  Object Properties>Fill None>
  Outline: CutWork>Running before>
  Offset: 0mm>
  Passes: 1mm>
  Cutting Offset: - 0.7mm.
- *File>Save As>*Select folder in which the design will be stored.
- Rename and save.

To Sew/cut the design

With fine fabric it is recommended to use a spray starch. Fabric should be hooped with a firm wash-away stabilizer (e.g. Aquamesh Plus from OESD).

- First sew out the running stitches and then attach the CutWork tool to cut out all of the shapes.
- Remove the CutWork tool and insert the needle and embroidery thread.
- Remove the hoop from the machine and place a piece of adhesive wash away on the back of the fabric.
- Re-attach the hoop to the machine; continue with the satin stitch cover layer.

As a border

- This design works well as a border design with the Mega Hoop.
- *Change Hoop>Select Mega Hoop Foot #44C.*
- Select rectangular array.
  - 1 horizontal
  - 3 vertical
  - Vertical spacing 8mm
- Combine the 3 cut layers and the 3 Stitches layers before sending to the machine.

Converting a design to an Appliqué

- Automatic Appliqué
- Thread palette
- Sequence manager
- Auto border

Opening the Vecto

› *File>New>Select color* and *fabric>Next>From File>Browse*.

› *BERNINA DesignWorks Samples>ASC-00088.cmx>Open*

› From the hoop choices, select *BERNINA 130 x 100 Medium #26>Next>Finish*

Converting object with Automatic Appliqué

Note: before continuing this exercise, from the View menu, confirm Thickness view is deselected.

› Zoom in on the design. Select and delete everything except one of the purple flowers.

› *File>Save As*. Navigate to the folder in which the design will be stored. Rename-CutWork Appliqué flower

› Click on the outline of the flower.

› Click on the Fill tab in Object Properties. (if object properties is not visible from the *Main Menu>View>Toolbars>Object Properties*)

› Select *Appliqué>Offset-0>Default Fixing-E-Stitch>Cleaning-laser cut*. **Note:** Select laser cut when using pre-cut appliqué shapes. Flower will be cut with the cutwork tool prior to stitching embroidered appliqué.

Select thread color

› Select a thread color from the Thread Palette. Be sure to click in the lower right corner of the color chip as this is a fill. Click away to de-select.

› Select the large painted area of the flower. Press <Delete>on the keyboard to eliminate the paint fill.

Creating the Appliqué Cut File

› Select the outline of the flower.

› Select *Auto Border>To the Inside>Distance - 0>Repeat 1>Type-Cut>OK*.

› From the *Object Properties Outline>Select Running Before>Offset - 1>Length - 2.5>Passes – 3*.

Creating Separate Cutting Files

Note: The CutWork file used to cut out the appliqué shapes needs to be created and sent the machine independently so that the appliqué shapes are precut/prepared prior to stitching the appliqué embroidery file.

- From the Sequence Manager, select the flower cutwork object (if Sequence Manager is not visible, from the main menu *select View>Sequence Manager*).
- *Edit>Cut*
- *File>New*
- Select fabric and *color>next>New Graphic>Finish*
- Right click on the *screen>Paste*
- *File>Save As*
- Navigate to the folder in which the appliqué design has been stored.
- Rename the file: Flower appliqué cut file>*Save*.
- Close the Flower appliqué cut file.

Adding the flower details

- Right click on the dark purple color chip in the Brushes used *palette>Select by>fill color*.
- While the center details are selected, click *Auto Border*
- Select to the I*nside>Distance-0>Repeat-1>Type-Running>OK*; click away to deselect
- Right click on the dark purple color chip in the Brushes Used palette. *Select>By Fill* and press «Delete» on the keyboard.
- Select the running stitch flower details, select a thread color from the palette, and remember to click in the upper left corner of the color chip for an outline. Click away to select.

Converting Objects into Appliqué

- Select the yellow flower center. Hint-Right click on the Brushes used yellow color chip. *Select>by fill*
- Select *Auto Border>Select to the Outside>Distance .5>Repeat 3>Type-Running>OK*
- Activate *Auto Sequence Control>Nothing>OK*
- Select the middle border; apply a thread color from the palette. Be sure to click in the upper left corner of the thread color chip to set an outline. **Tipp:** Use the Sequence Manager to assist in selecting the correct border outline.
- Select the outer border, from Object Properties Outline tab, select Satin Serial.

- Adjust the outline to 1.5 in the Tool Options Dialog box (if Tool Options are not visible, from the Main menu, select *Toolbars>Tool options*); click away to deselect.
- Select the yellow paint filled center and press the delete key on the keyboard.
- Select *File>Save*

Creating the Appliqué Cut Files

- Select the middle satin serial circle.
- Select *AutoBorder>To the Inside>Distance 0>Repeat 1>Type-Cut>OK.*
- Object Properties *Outline>Select Running Before>Offset 1>Length 2.5>Passes 3*

Creating Separate Cutting Files

- From the sequence manager select the center circle cutwork object.
- *Edit>Cut*
- *File>New>Select fabric* and *color>Next>New Graphic>Finish*
- Right click on the *screen>Paste*
- *File>Save As*
- Navigate to the folder in which the appliqué design has been stored
- Rename the file: Flower Center Flower Center appliqué cut file>*Save*
- Close the Flower Center appliqué cut file

Stitching the Design

- Each file will need to be exported to the machine of choice for stitching.
- Send each of the cut files (flower and center) to the machine and cut.
- Send the CutWork Applique Flower file to the machine for stitching.

Note: that the machine will stitch a placement line for flower. Position the pre-cut appliqué fabric. Continue stitching until the placement line in the center is completed.

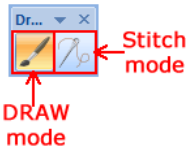
Position the pre-cut center appliqué shape. The machine will stitch a running stitch to secure, then the final satin cover stitch.

With PaintWork color outlines and fills can be applied to shapes, artwork or drawn designs, or objects created in the software using the drawing tools.

Note: In PaintWork, the colors in the design are defined by the Brushes available.

PaintWork

Managing Colors



In Draw mode the color of true vector artwork can be defined. There are 200 cmx files (coral graphics) included in the software found in the BERNINA DesignWork Samples folder.

When a design is created automatically, the colors that most closely match to the backdrop will be colors selected from the brushes color palette.

When creating objects using the drawing tools, default colors will be selected from the palette. Edit the colors as the objects are created or when the design is complete.

Up to 99 color options may be included depending upon the Brush brand selected; a single Paint Design file is limited to 16 colors.

Below the Available colors, the palette shows the colors currently used in a design.

The color chip consists of 2 triangles.

A pen in the upper left indicates the color is used to outline an object.

A bucket in the lower right of the color chip indicates the color is used to fill an object.

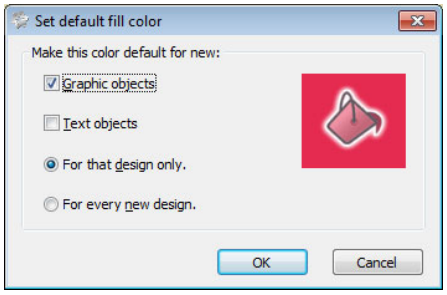
The first chip in the currently used color palette is an empty square.
Select when no outline or no fill is desired within an object

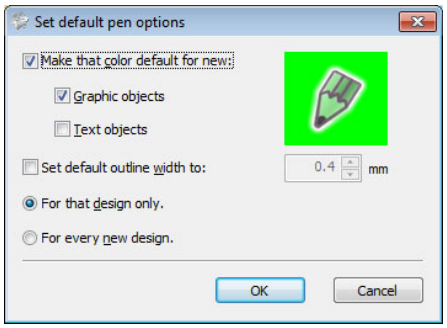
Tip: The Brush palette can be moved and sized on the workspace.

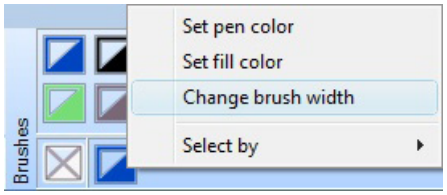
When the software is first opened the default palette is RGB. (Red, Green, Blue). This can be customized by selecting the Edit Palette Icon on the standard Tool Bar.

› Select the brand of pens from the Brushes Palette drop down menu in the lower section of the dialog box.

Note: the brands listed are a representation of those suitable for use with the Paint-Work Tool. Experiment with a variety of brushes for the effects desired.







Changing Colors

If no color has been selected then objects will be filled and outlined with default colors.

- Select the object to be changed; click on the desired color chip from the Brush Palette.
- Click in the upper left corner to change the outline and the lower right to change the fill area.

To pre-set the color prior to creating an object, be sure no objects on the workspace are selected, right click on the desired color in the Brush Palette. Select from the available options in the dialog box.

It is also possible to Edit the Palettes eg. The default color palette (RGB).

- Right click on the RGB color palette and select Add new color from the menu.
- Change brush width.
- Manufacturers Palettes have a fixed brush width, for example with Edding 4500, the range has a 2mm width and the 4600 line has a 1mm width. To enable the Software to be more accurate it is possible to change the brush width of the color used. Right click on a color used and select the Change width option. In the dialog box, set the width of brush/pen used.

Paint Types

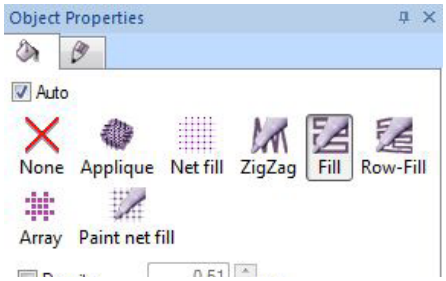
- The following Paint types can be used to create a variety of effects and are visible in *Object Properties <Alt +Enter>*. Fill and Outline options are not visible until an object is selected.

Fill and Outline

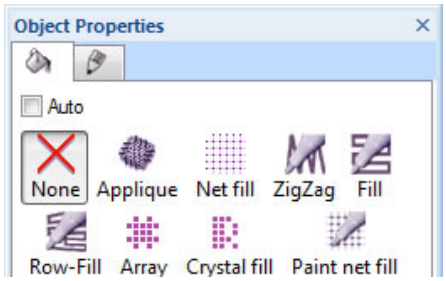
Fill

When a vector design is filled for the first time a paint fill is applied automatically by default. It is possible to select from the following fill types to edit the filled object.

- ZigZag
- Fill
- Row-Fill
- Net Fill

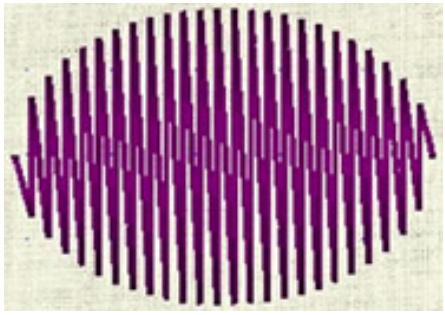


Object properties Fill view with PaintWork only.



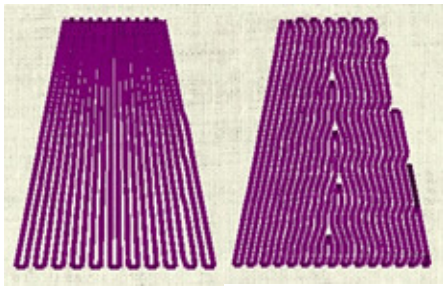
Object properties Fill view with all modules enabled.
Each fill type uses a different method to paint a shape resulting in unique effects.

Fill Types



ZigZag Brush lines connect two points from one side of the object to the other. These points are formed like a closely arranged ZigZag and can be positioned at any angle and in varying densities. Small -and oblong objects will be filled with this Paint type by default.

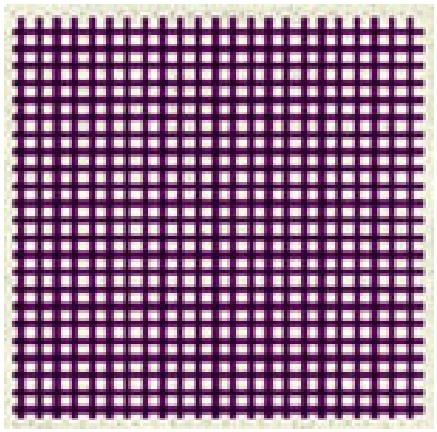
Fill type is a series of brush-lines commonly used to fill large areas. Different fill paint patterns can be created by altering the angle and the density.



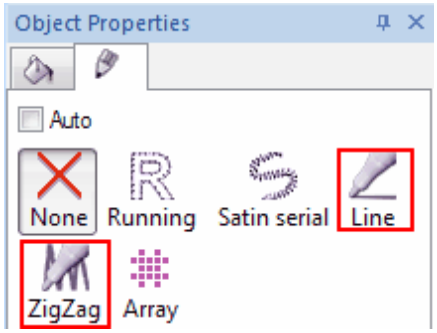
Row fill

Row fill with short long

Row-Fill type is similar to the Fill type. It is produced with vertical brush lines from one side of the object shape to the other – the direction is automatically defined by the software. Row-fill may be created with varying densities. Select the short/long option which allows filling of the object with fill stitches that will adjust the paint density based on the shape in which they are placed.



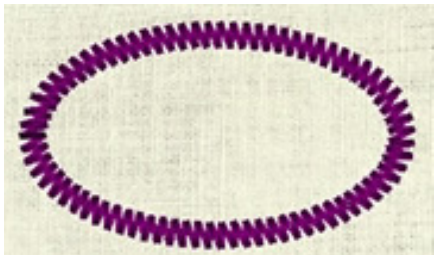
Net fill Paint type creates two sets of intersecting equidistant paint lines forming a net effect. The look of the net may be changed by adjusting the cell size, offset and angle.

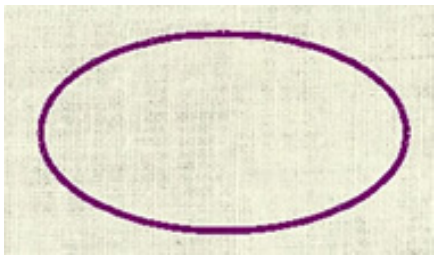


Outlines

There are two outline paint types to choose from:

- Line
- ZigZag





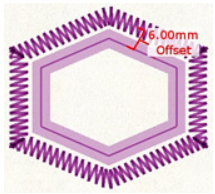
Outline Types

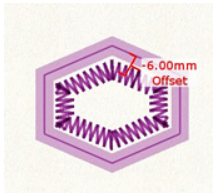
ZigZag outline is applied on thick outline objects by forming closely placed zigzag brushlines along it. It is generally used to fill borders and line art designs. The density may be adjusted.

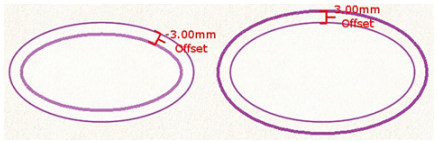
Line outline consists of a single brush-line between two points. It is used mainly for outlining, fine detail and complete designs, or for creating Redwork style line art. Line art designs and thin object outlines will use the Line outline type.

The offset for both line types can be set adjusted, a negative value will position the line inside the original vector shape. Offset distance is measured from the center of a zig-zag line.

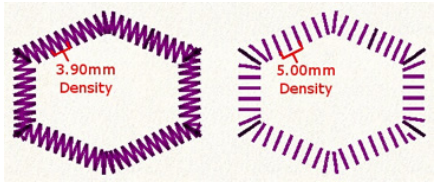
Below left shows a paint line (the thicker line) with a -3.00 - offset inside the vector image and then on the right a paint line with a 3.00mm offset outside the vector image.







Density

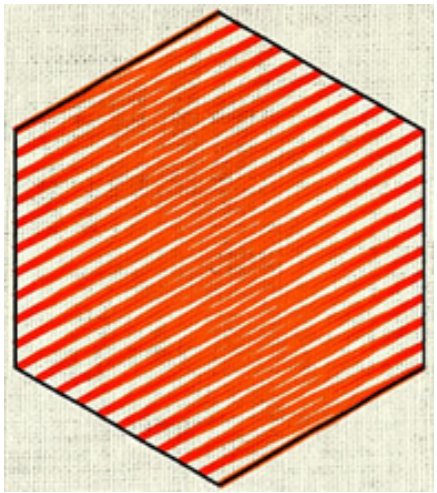


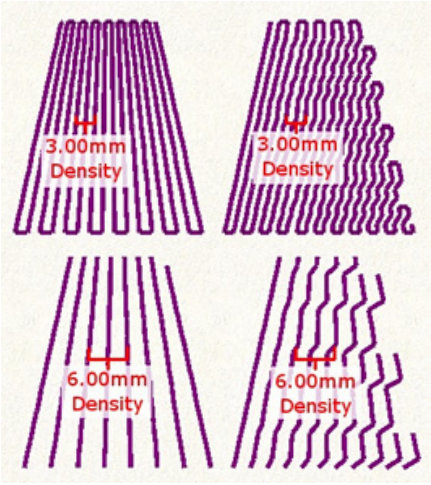
Realistic Paint

Realistic Paint option can be selected or deselected from the View menu.

Enable the Realistic paint option for a realistic preview of the design being created. The brush-lines and texture will be visible providing an accurate preview of the final result.

› Disable the Realistic Paint option to view the design in solid color.





Fill Effects

Density

When activated the density of the pen (brush) lines can be set between .2 and 9.99mm.

The default density is 1.20mm, a significant increase in density will result in single painted lines.

Remove Overlaps

Automatic filter which removes all overlaps between the objects of vector designs. There are 3 options:

- **Auto** This is the default setting used to create the best possible results
- **Never** When applied the overlaps will never be trimmed
- **Always** All objects overlapping objects will be trimmed

Sequence

Available in the Object Properties window when the Auto-sequence *Tools>Optimizer options* is enabled by clicking on the lamp icon.

With this tool enabled, from the Object Properties box, the following options are available:

- **Auto** Default option gives the best possible result
- **To Start** Selected object will be painted first
- **To End** Selected object will be painted last

If more than one object is set to start or to end, the software will automatically decide the order.

Divide

With this tool it is possible to divide ZigZag and Row Fill paint objects and manage the way the paint lines are split into sub sections. This gives more flexibility on how the objects are painted. Divide is very useful for text.

› Click on or *<shift+D>*and click on the object.

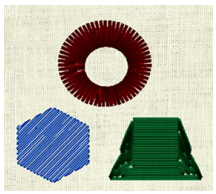
› Click and drag from one side of the bject to the other to specify the divide line.

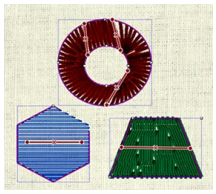
› Change the line by clicking and dragging the points of the line.

› Click on the «X» to delete divides.

Directions

It is also possible to change the direction of all paint fill objects (except net fill).





- Click on the or press the <D>short cut key.
- Then click on the object and click and drag to specify the direction of the paint fill lines.
- To delete a direction line, click the «X».

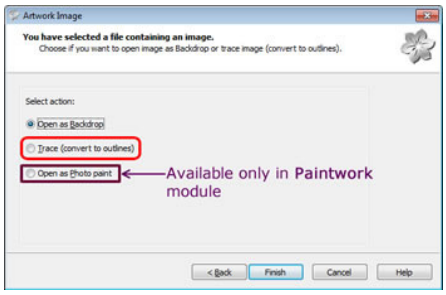


Photo Paint

Photo-paint is another alternative when it comes to filling bitmap images with paint. By selecting the Open as Photo paint option, a bitmap image may be converted to a Photo paint design. The conversion is made automatically by clicking the Next button in the dialog box. The resulting design created by the Photo Paint process will open inside BERNINA DesignWorks, and then adjustments may be made.

Photo Paint designs consist of 4 pre-defined color layers. Each brush color layer is one of the CMYK (Cyan, Magenta, Yellow and Black) color model. First the Magenta color is painted, then the Cyan color, the Yellow color follows and finally comes the Black color.

These colors cannot be changed and painted in the sequence generated, to produce accurate Photo-paint results.

In the Draw mode of BERNINA DesignWorks, it is not possible to edit the actual bitmap image but it is possible to resize and change the position of the Photo-paint design. To edit the actual bitmap image, use Bitmap Editing Software and then import the edited bitmap back to BERNINA DesignWorks to view the results.

Photo to Photo-paint

Enhance the result of the Photo-paint design by adjusting the image contrast. Increasing the contrast of the image generates thicker Zig Zag bars in the darker areas of the photo, and adds detail to the final colored design. Some adjustment to the image size might be necessary for more detail in the photo-paint design.

To increase the size of the bitmap inside BERNINA DesignWorks, select the Photo-paint design, and then resize it by click and dragging the corner handles of the bitmap or the handles at the middle of each side. The bitmap will be resized and the Photo-paint will be recalculated.

The Width and the Density of the painted lines may be adjusted in the Object Properties dialog box. The Width value affects the distance between rows of paint. The Density value, set the thickness of the lines of paint. By adjusting these two values, more detailed Photo-paint results are achievable.

Monochrome Photo-paint

For a Monochrome Photo-paint effect, check the respective option from the Object Properties dialog box. The Photo-paint will become a monochromatic design (black or any other color selected from the brushes color palette). This is a great effect that can give an artistic feeling to a Photo-paint image.

Important: BERNINA DesignWorks can only import bitmap images that have been created with RGB (Red, Green, and Blue) colors. A CMYK bitmap (Cyan, Magenta, Yellow, and Black) will not convert properly. A CMYK bitmap image may be converted to RGB in bitmap editing software, and then imported to BERNINA DesignWorks software.

PaintWork Exercises

Please note the following for all exercises:

Create a folder called PaintWork Lessons to save all exercise files for further use.

› A click or double click refers to a left mouse click unless otherwise specified.

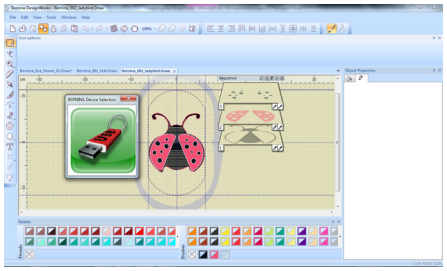
The following path is followed to access designs on different operating systems:

- **XP** *C>Documents & Settings>All Users>Documents>BERNINA DesignWorks Samples*
- **Vista** *C>Users>Public Documents>BERNINA DesignWorks Samples*
- **Windows 7** *Libraries>Documents>BERNINA DesignWorks Samples*

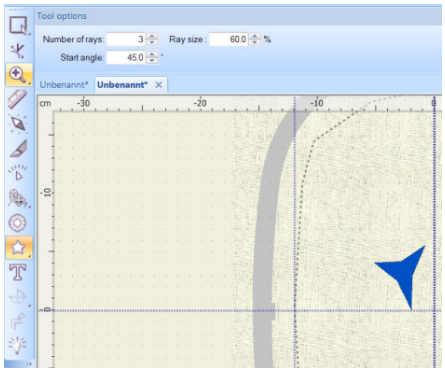
The exercises in this workbook are based on Windows 7.

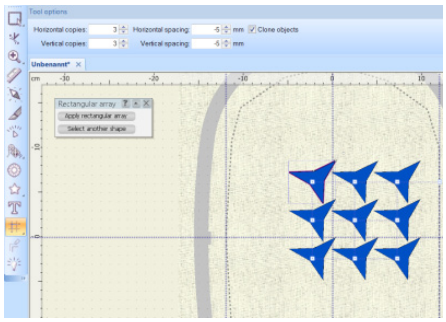
A fabric will not be chosen, however if a specific fabric is required for the exercise select it when necessary.

Exporting a PaintWork design for painting



› To export a design to the machine, click on the Export icon.
– *A dialog box will open showing USB Stick. This is the only method for transferring Paint designs to the machine.*
– *A message will appear that the design has been successfully sent.*





Creating a design using Rectangular Array

- Create Shape Tool
- Tool Options
- Rectangular Array

› *Create new>new graphic*

› *Tools Toolbar>create shape>star*

› From the Tools options box determine how many rays e.g. 3. Determine the size of the object (ray size in %) and the start angle, many different forms can be achieved.

› Click on array tool.
– *A new window opens*

› Select Apply Rectangular Array
Now one can choose from the following in the tool options:

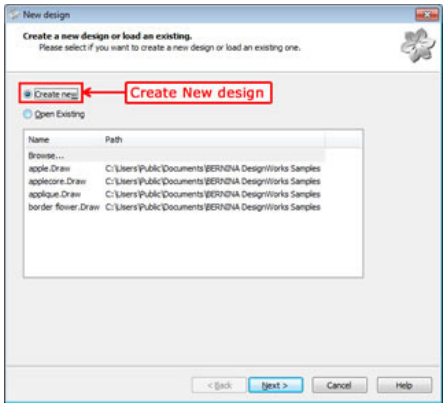
- Horizontal copies
- Vertical copies
- Horizontal spacing
- Vertical spacing
- Clone objects

› It is also possible to change the orientation of individual objects by placing the mouse over the object.

Converting a Vector to a PaintWork Design

- Wizard
- Selecting fabric and colors
- Working with a vector design
- Editing Colors
- Print Preview

This is a step-by-step tutorial to create a PaintWork design.

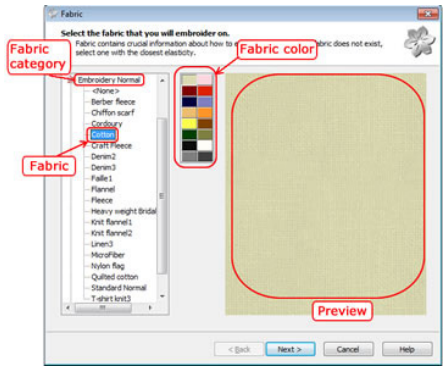


Selecting the design

› Start BERNINA DesignWorks by double clicking on shortcut icon that is found on the desktop.
– *The wizard will appear.*

› Select *Create new>Next*.
– *The Fabric dialog will appear.*

› Expand the Embroidery normal category from the list at the left by clicking on the *«+ icon»* next to it.

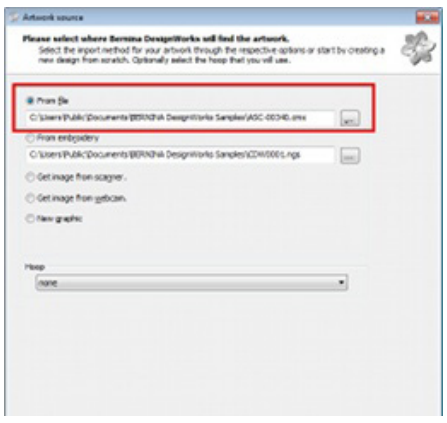


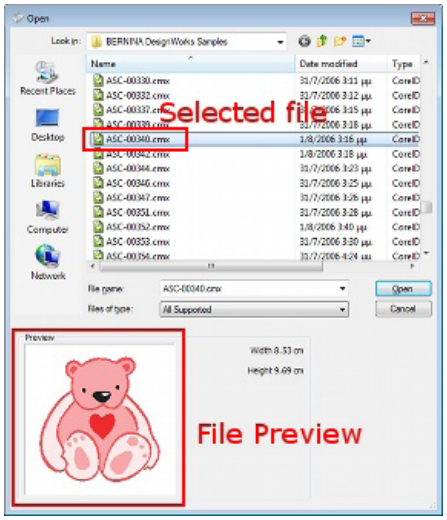
› Select the Fabric type most similar with the one actually used to embroider the design. For this exercise, select *Cotton fabric*.

› Choose the fabric color most closely resembling the color the design will be embroidered on. For this exercise, select the tan color chip.

› Click *Next* to continue.
– *The Artwork source dialog will appear.*

› Select the From File option and Click on the browse button to locate the desired file.





– *The Open dialog box will appear, navigate to the BERNINA DesignWorks Samples Folder.*

Inside the BERNINA DesignWorks samples folder are ready-made Vector (clipart) images that can be imported into BERNINA DesignWorks and converted into a design file.

› Select *ASC-00340.cmx file* and *Open*.

– *The Artwork source dialog will re-open with the design selected listed in the From file field.*

› In the Hoop section of the dialog box, select the hoop which will be used to embroider the design in.

› Select the *BERNINA 130X100 #48 Medium hoop*.

› After selecting the Hoop, click *Next* to continue.

Editing the colors

› The Color reduction dialog box will appear.
Note: when PaintWork is activated in any combination within the DesignWorks installation, Paint becomes the default fill type.

› Click on the arrow under the Brushes Palette and the drop-down menu to view the available brands.

› Select the desired brush palette by clicking on the brand within the list. For this exercise, select the EDDING TEXTILSTIFTE (textile pen) brush palette. The colors of the design generated will be assigned to the closest brush color of the EDDING TEXTILSTIFTE palette.

› In the Color reduction dialog, note the artwork has 6 different colors identified in Brushes to use section.

› Reduce the number of colors in the design by moving the arrow to the left.

› Click *Finish* to convert the imported image to a paint design.

› The DesignWorks generated Paint design will appear in the working area, centered in the hoop selected in the Wizard set up.

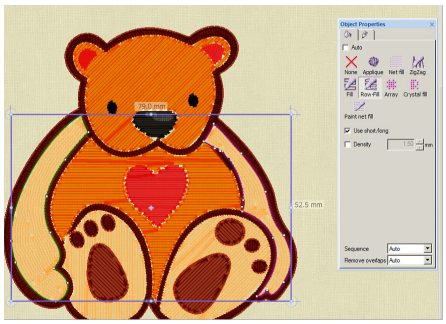
› Click on *View* from the Main Menu, be sure Realistic Paint and 3D Preview are selected.

– *The file may now be sent to the machine for painting.*

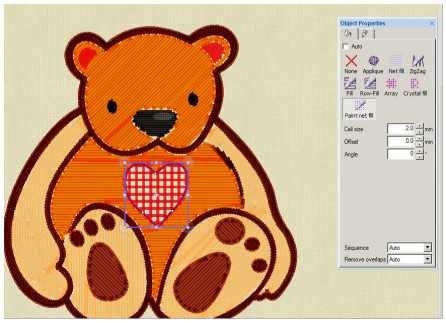
Editing the design

When an object is selected, its properties appear on the Object properties dialog box.

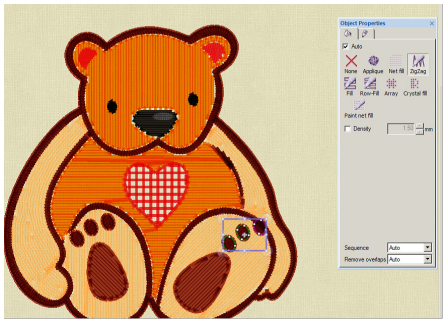
- Activate the Rectangle Select tool and click on an object to select.
- Select multiple objects by holding pressing and holding the <*Shift*>key while clicking on objects to select.
- Select the bear's arms and feet; click on the lower right corner of Color #16, 1mm from the Brushes Palette to change the fill.
  Note: the chip is now in the Colors. Used section of the Palette.
- Select the head and the body, click on the lower right corner of Color #6, 1mm from the Brush Palette.
- Select the outline, and the details on the feet, click on the lower right corner of Color #7, 1mm from the Brush Palette. While the group is still selected, click on the upper left corner of Color #7, 1mm to add an outline.
  Note: there is one small detail shading between the arm and body on the right hand side of the bear. Click to select then press the <*Delete*>key on the keyboard.

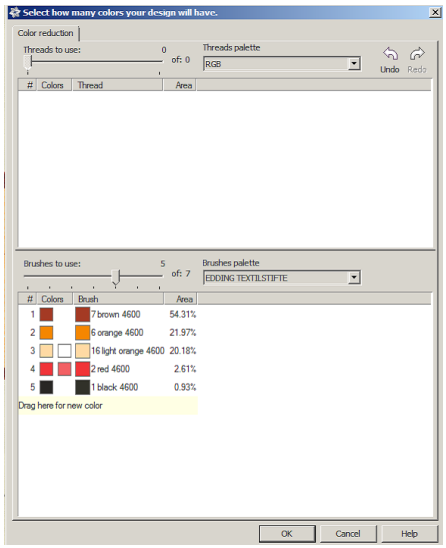


- Click on the right arm,
  Note: the software has associated the arm with the left foot; right click and select Break Apart. Select the right and left arms; in the Object Properties dialog box, select Row Fill to change the paint texture.



- Select the bear's heart and select *Paint Net fill*. While the heart is selected, click in the upper left corner of the heart color chip in the colors used section of the palette to add an outline.





More Editing

- Select the dark brown outline area, select *zig-zag fill.*
- Direction of the Paint fill can be altered with the Direction Tool from the Tools Toolbar. Select the bear's head, select the Direction tool. Click and drag a line from the top of the head to the bottom of the head. Right click to deactivate the tool.
- The detailing on the bear's toe pads were generated to replicate the graphic. For a more symmetrical design, select the toe details on the right foot and press the *<Delete>*key on the keyboard to delete. Select the details on the left foot, right click Group. Right click Copy, right click Paste. Move the duplicates to the right foot.
- Place the cursor over the corner of the selection box until the rotation arrow appears. Click and drag the arrow to rotate the object to the desired position.
- To preview the design as it will paint, click Slow Redraw and press Start Click on the stitch button. Select Edit Palette and move the Brushes to use slider to 5 to view the final colors that will be used after the color matching has been completed. The design is now ready to be painted on fabric.

To save the design

› Save the design to a .draw file format, the default file format of BERNINA DesignWorks.

› From File menu, select <*Save as*>option. Select the folder created at the beginning of the exercise.

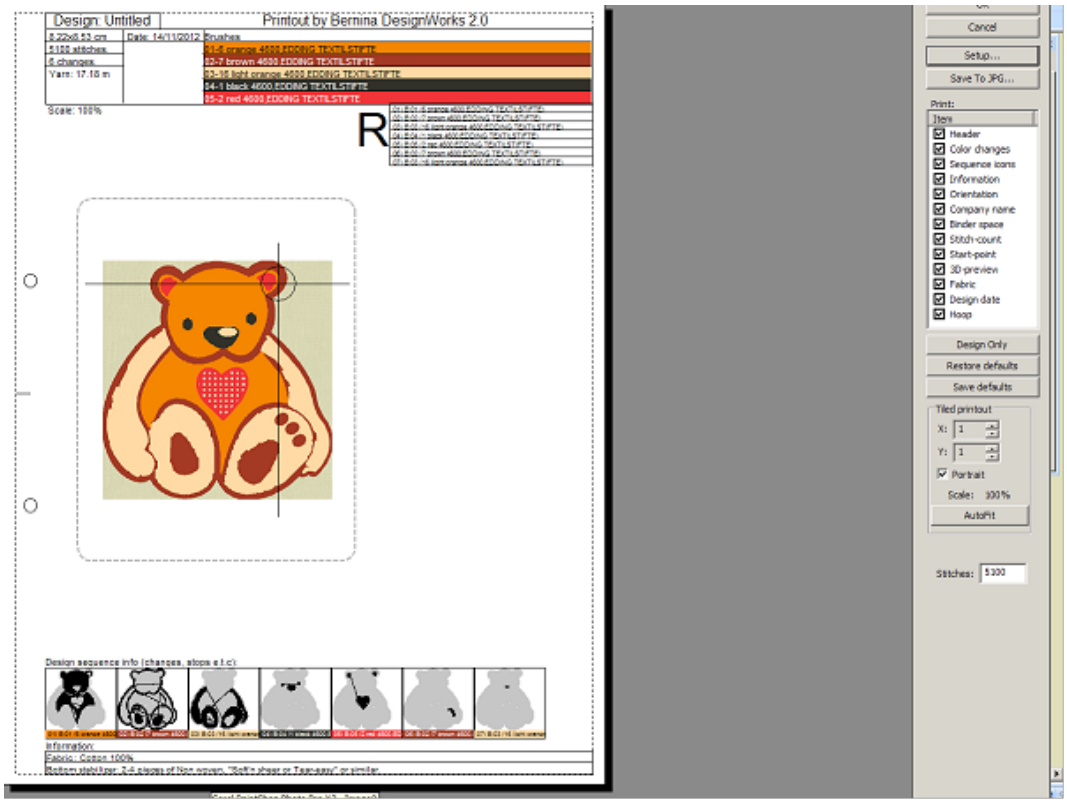
› Click on the <*Save as*>type drop-down menu to view the available file-type options to select the .draw file type which is the default. Type a name for the file in the File name: field and click <*Save*>.

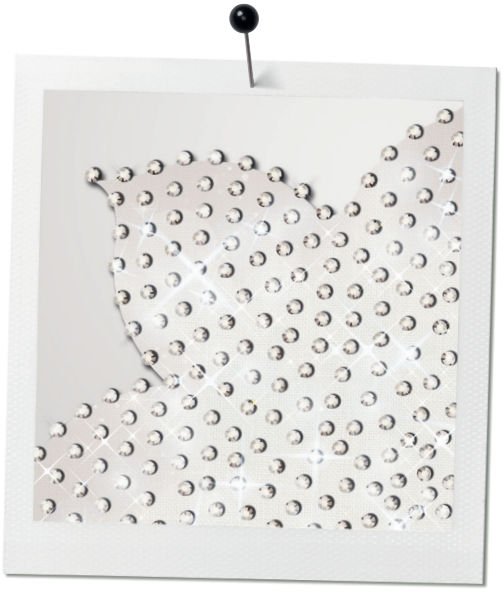
› Select Export to machine. Insert a USB stick and click on the USB button. The design will be saved on the USB stick directly. The file name of the design will be the same as the current design.

Print Preview

› After saving the design, print a template for reference during the paint process. From the File Menu, select Print.

› The Print preview window will appear with all the listed information required to paint, and or embroider or cut the design correctly. Review the options on the right side of the window. Press *OK* to confirm and print.





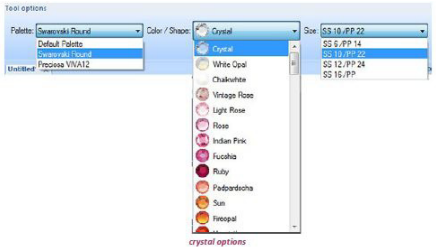
CrystalWork

BERNINA DesignWorks software provides the design tools needed to make templates to create custom rhinestone appliqués. The CrystalWork embroidery file is sent to the compatible BERNINA embroidery machine, the CrystalWorks tool set «punches» the crystal pattern into template material. The completed template is filled with heat set crystals and adhered to the project. A variety of colors together and/or different size crystals may be combined for spectacular effects.

Several methods that can be used to create crystal designs including:

- Insert Crystal Shapes
- Crystal Fill
- Crystal outlines

Insert Crystal Shapes



crystal options

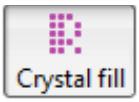
Using the Create crystal shape tool, insert crystals anywhere in a design by activating the tool and left clicking on the location where a crystal is desired. When all crystals are inserted, right click to deactivate the tool.

Relevant options will appear in the Tool Options toolbar. These include Palette, Color /Shape and Size.

The sizing of the crystals varies between manufacturers; two values are provided for each crystal size for convenience. Refer to crystal packaging for size of the type of crystal being used.

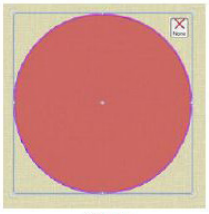
Note: The CrystalWork tool is designed for use with heat set crystals between 2.0 and 4.0mm.

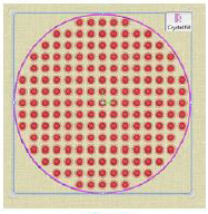
- SS stands for Stone Size, and is used for flat back and larger pointed back stones.
- PP stands for Pearl Plate, and is used for stones and pearl sizing.



Crystal Fill

It is possible to fill an object area with crystals in a variety of patterns.


With Fill


Crystal fill

IMPORTANT: The default distance between crystals is 2.0mm. This is important – it ensures there is enough space to make sure the holes are cut out correctly. This value must be maintained when editing the design.

Crystal Fill – Common Parameters

In the Object Properties toolbar are the common parameters for all types of fill areas.

- Palette
- Size
- Color / Shape
- Fill
- Offset
- Separate to crystals

Palette

There are 3 available:

- Default Palette,
- Swarovski Round
- Preciosa VIVA12

Only the crystals included in each collection will then appear in the Color/Shape list. The Default palette contains only one crystal; it is possible to change the color in the Color / Shape menu.

Color/Shape The Swarovski palette includes 85 crystals and the Preciosa 59. Apply by selecting the color desired.

Size The available crystal sizes depend on the palette selected. BERNINA CrystalWork supports four sizes SS 6, 10, 12 and 16. The default crystal size is SS10. It is important to select the correct size of crystal corresponding to those that will be used in order to create the appliqué successfully.

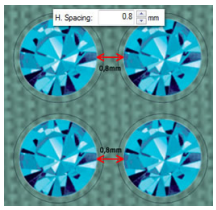
Fill

Choose from the following fill options:

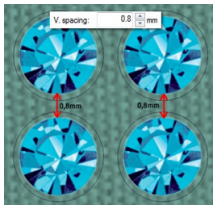
- Rectangle
- Circular
- Contour
- Single line
- Shape fit
- Line Fit

Experiment with different patterns to find the best crystal fill for the selected object shape.

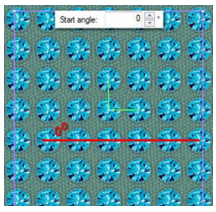
Rectangle fill options

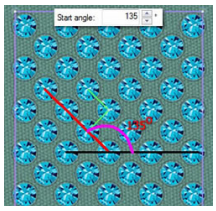


- **H. Spacing – Horizontal:** the distance between the stones measured on the horizontal axis.

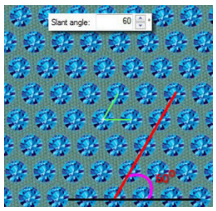


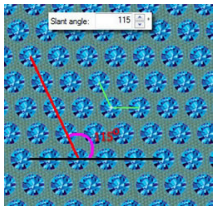
- **V. Spacing – Vertical:** the distance between the stones measured on the vertical axis.



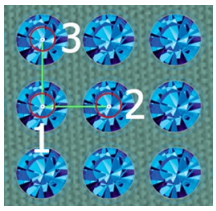


Start angle The start angle applies to horizontal lines which will fill the object shape. Altering the start angle gives a different effect and may result in a better fill for the object. This can be edited in Edit shape nodes when Edit outline in the Tool options bar is unchecked.





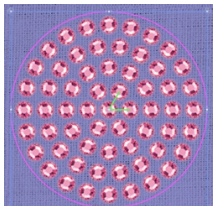
Slant angle Slant angle applies to vertical lines which will fill the object shape. Altering the Slant Angle provides a different effect and may result in a better fill for the object. This can be edited in Edit shape nodes when Edit outline in the Tools options bar is unchecked. For further finetuning, adjust the horizontal and vertical spacing.



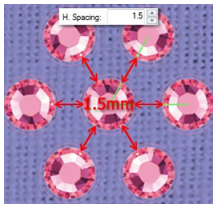
Node Editing There are 3 control points, the first being the first crystal in the design. The second control point is the Horizontal spacing (H.spacing) and the third is Vertical spacing (V.spacing).

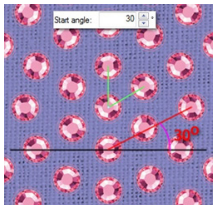
These Control Handles can be used to edit the spacing visually by moving the control points within the object. Note: the same adjustments may be made within the Object properties box by entering numeric values.

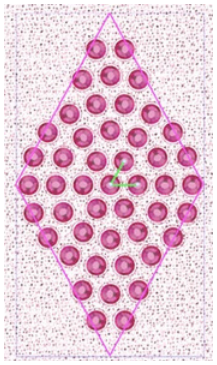
Circular

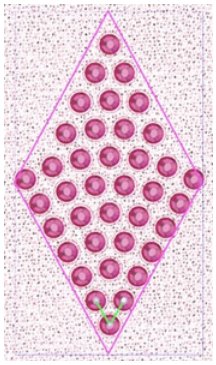


The Spacing and Start angle is similar to rectangular fill.

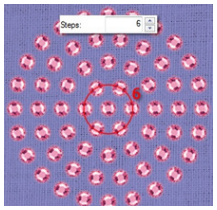


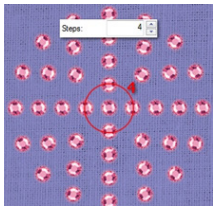






Start angle 0° Start angle 60°

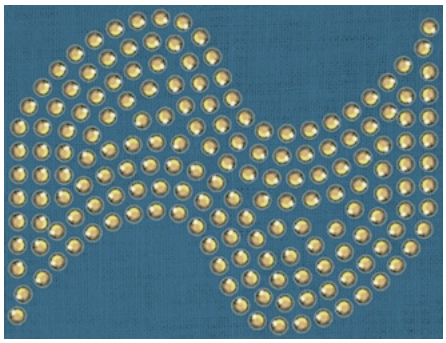




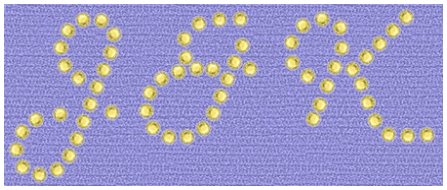
Steps specify the number of crystals added in any circular pattern starting from the inside to the outside.

Use the control handles to make adjustments as with a rectangular fill.

Contour

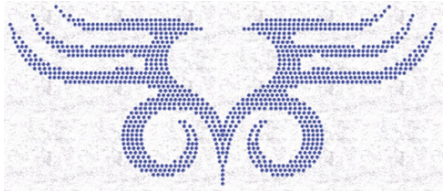


Horizontal Spacing and Vertical Spacing can be modified within a Contour fill.



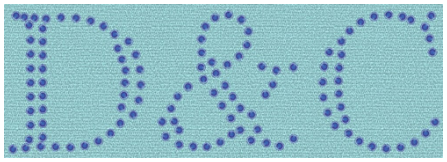
Single Line

Single Line is used to fill areas with Crystals in a continuous line. This works well for lettering. Horizontal spacing is used to adjust the spacing between the crystals.



Shape Fit

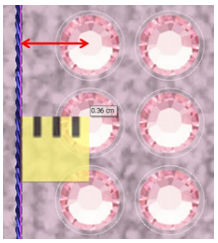
Shape Fit is the default for filling designs with crystals, as this fill type works well with most designs. The advantage is that it adjusts the way the crystals are placed according to the object's shape rather than a consistent set spacing. H.Spacing, V.spacing and Start angle may be adjusted however results will vary as the crystals are not distributed evenly.



Line Fit

This fills an area with a continuous line and where necessary adds additional lines in double or triple rows in wider areas. It is very useful for text art designs that are difficult to fill.

› spacing can be adjusted when using Line Fit.



Offset

This is the minimum distance between the outline and the center of the nearest crystal.

› Activate the offset option by checking the box. Enter the value required.

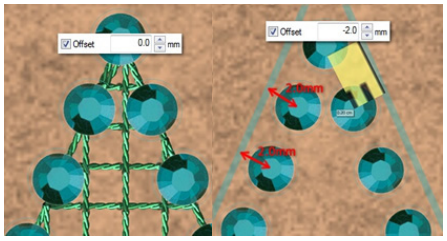
Separate to Crystals

This converts the selected object into individual crystals. After Separating to Crystals, it is then possible to delete, move or manually add crystals. This is useful when applying different colors to a shape or to create complex designs.

Tip: once Separate to Crystals has been activated it is not possible to re-group the crystals. BEFORE Separate to Crystals is used, create and Save a copy of the design file for maximum editing options in the future.

Crystal Outline

Outlines with crystals have the following parameters – Offset and Spacing. They do not have control points in Node Editor.



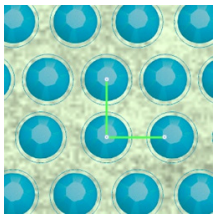
Offset

The offset value is the distance between the center of the crystal and the object outline the crystals are applied to. The offset can be adjusted within a range of -15 to +15mm.

This is useful for positioning crystals placed away from or closer to the outline of a design.

Spacing

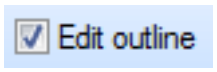
The spacing value refers to the distance between the edges of the crystals. This is an important tool to create perfect crystal holes and avoid overlapping crystals. Changes to the spacing and offset values are independent of the other.



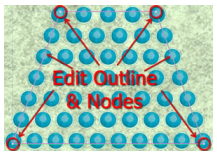
Edit Crystal Fill Objects Outline

It is possible to edit the shape of any created object at any time using Node editor.

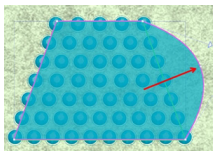
For the objects that have Crystal Fill applied by default it is not possible to edit their outline. Only single line and Line fit Fill patterns retain the ability to edit the outline directly. When using Node editing mode for these objects we can edit the fill pattern using the pattern handles.



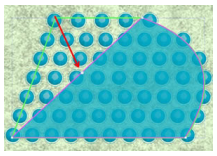
The Edit outline option on the Tools Options toolbar must be activated to edit the shape outline.



Edit outline enabled



Move outline



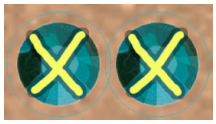
The shape of object has changed.

Overlapping Crystals

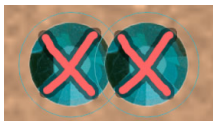
This function indicates areas within the design that have crystals overlapping. Activate to verify positioning of crystals within a design; deactivate while creating/editing to conserve computer resources.

Enable this option by selecting *View>Overlapping crystals*.

All overlapping crystals will be marked by an «X» in order to be recognizable.



Crystal outline overlapping in yellow means there is not enough distance between the crystals.



Actual crystals that are overlapping are shown in red. It is recommended that Overlapping Crystals be enabled before the design is finalized in order to ensure that all crystals are placed correctly.

Export to machine

› Select *File>Export>Crystals to machine* (this option will only appear if there is a design containing crystals in the working area).
– *The Export to machine dialogue box will appear.*

At the top left is a preview of the design to be sent to the machine.

Below is a list of the possible crystal templates that can be sent to the machine.

If the All Templates as one option is selected, the entire template design will be sent to the machine for cutting.

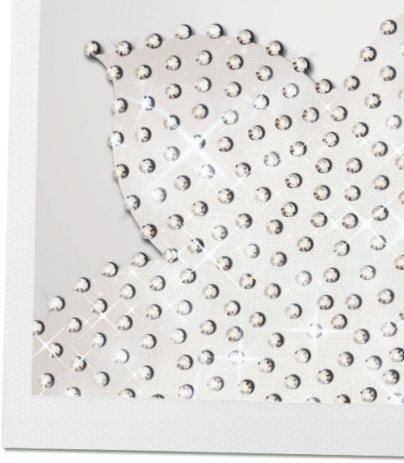
› The cutting will be done by color so it is possible to stop in between each color to change the template material if desired.

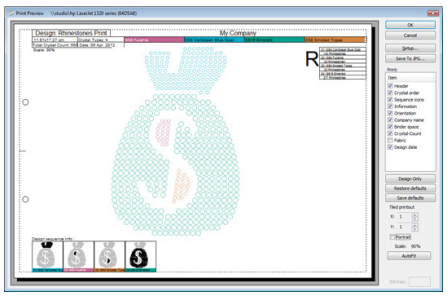
› To send a template by color to the machine, select the file from the list of templates.
Tip: The size of the design is also shown which is handy for cutting the template material.

› Print out the template list by clicking on the printer icon.

› Select *Send to machine* (located under the printer icon)
– *The BERNINA Device Selection Display will appear.*

› Choose the desired device.





Printing CrystalWork

The BERNINA CrystalWork module provides extensive options for printing design information. The printed design template is helpful during the embroidery process/ template cutting process.

The printout provides information needed to evaluate the design before sending to the machine. To print, press the *Print icon* on the standard toolbar or from the menu File>Print option, or press the *Ctrl + P* shortcut keys from the keyboard.

The following dialog will appear, providing a preview of the printout.

In the *Print Preview* window, there is a preview of the crystal design and the design information.

The menu on the right offers a variety of options for customizing the printout:

- **Setup** elect and customize the printer properties
- **Save to JPG** creates a graphic image of the print file
- **Print** check items on the list to include on the print out, note several are selected by default and may be deselected by removing the check
- **Save defaults** click to save customized printing choices as the default for future printing
- **Tiled printout** customize some aspects of the print such as number of pages to tile, orientation and scale.

Print Details

In the Print options section of the print options window, specify which information is desired for the printout. If the item is selected (checked), it is visible in the preview area.

Header is at the top of the page, includes the design size, color/crystal changes, number of crystals, crystal types used, the crystal colors/names.

Crystal order

Top right of the printout; indicates the sequence of the crystal/color changes. This information is useful for keeping track of the order in which the objects will be cut.

Design Sequence

Bottom of the page; shows each segment of the design split by color/crystal change. In each segment the name of the color/crystal to be used and comments are printed.

CrystalWork Exercises

Create a Crystal Design

- Preparing a graphic
- Adding crystals – Fill and Outline
- Changing colors
- Removing overlapping crystals

Please note the following for all Exercises:

› Create a folder to save all exercise files.

BERNINA DesignWorks files can be found:

- **XP** *C>Documents & Settings>All Users>Documents>BERNINA DesignWorks*
- **Vista** *C>Users>Public Documents>BERNINA DesignWorks*
- **Windows 7** *Libraries>Documents>BERNINA DesignWorks*

The exercises in this workbook are based on Windows 7.

Note: If only CrystalWorks access codes have been purchased/ enabled, thread colors will be shown with Running activated as it is the default setting; otherwise brush color will be selected. Instructions assume full suite is enabled.

Prepare Graphic

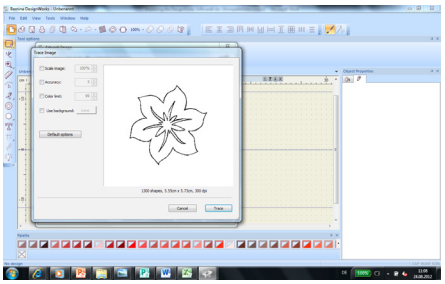
› *Create New>Next*

› Select *appropriate fabric type/color>Next*

› Select From File, and browse to Flower.jpg *C:\Users\Public\Documents\BERNINA DesignWorks Samples\Training\Flower.JPG*

› Select BERNINA Large Oval Hoop with Foot #48

› Click *Next*



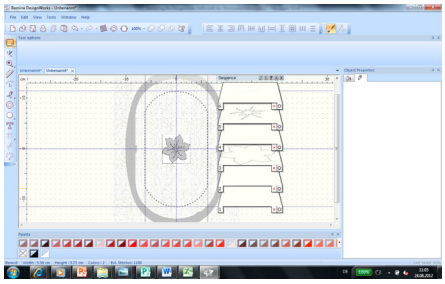
› Select *Trace (convert to outlines)>Click Next*

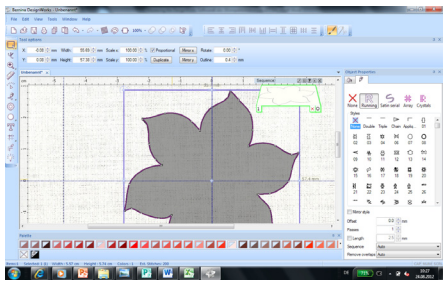
› *Default Options>Trace>Finish*

› Select>*Auto-sequence control* from Tools Toolbar.

› Choose Simple.

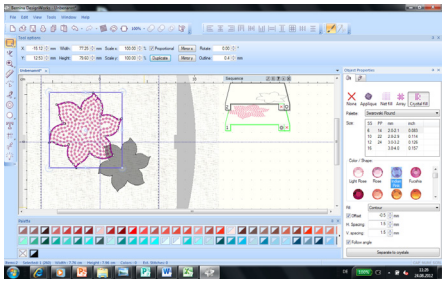
› Enlarge the Sequence manager Dialog box (click and drag the edge of the dialog window) so all six layers are visible.
Note: if the Sequence manager is not visible on the workspace select *View>Sequence Manager* from the main menu).





Edit the Layers:

- Press and hold *<Shift>*, click on layers 1, 2, 4, 5, and 6 to select.
- Press *<Delete>*
- Select *View>Backdrop>Hide*



To add crystals

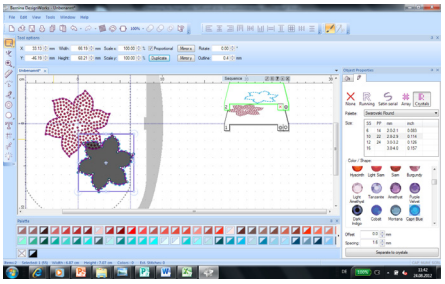
- Click on the flower to select.
- Select Duplicate on the Tool options tool bar (note: if the tool options toolbar is not visible, select View>tool Bars>Tool Options from the main menu)
- Move the second flower away from the first flower
- Select the first flower

From Tool Options

- Proportional activated (checked), scale up to 140%

From Object Properties
Note: if Object Properties window is not visible select *View>Tool Bars>Object Properties*

- Change fill to Crystals
- Select crystal size SS6
- Select *«Indian Pink»* shade
- Change fill to *«Contour»*
- Check Offset, and change value to -0.5
- Set *«Spacing»* to 1.5



Edit second flower

› Select second flower

From Tool Options

› Proportional activated (checked), scale up to 120%

› Apply a colored outline to the shape if it does not already have one

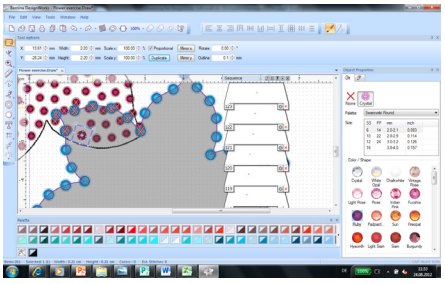
› With the shape selected, click in the upper left corner of a color chip to activate an outline

› With the outline selected, from *Object Properties>Outline*, select Crystals

› Change crystal size to SS 10

› Select color «Capri Blue»

› Save the Design File - *File>Save As>*Navigate to the folder in which the design will be stored, name and Save



To remove the overlapping crystals

› Position the flowers in a visually pleasing arrangement.

› Select manage hoops from the Main Menu - Activate Center Design to Hoop

› Activate *«View / Overlapping Crystals»* - Overlapping crystals are marked with an «X»

› *Save*

› Select *«Separate to crystals»* to split outline by crystals

› Right-click one of the crystals

› Select *«Ungroup«* and note that all the crystals are now on a separate layer in the Sequence Manager

› Select the overlapping crystals and delete them

Group the blue crystals

› Select a blue crystal from the design

› Right-click «Capri Blue» in the *Object Properties window>Select «Add to selection»*

› Right-click on the workspace

› Select *«Group»*

Add single crystals

› Use «Create crystal shape»

› From the tool Options, select the desired color and size of the crystals

› Add crystal details as desired.

› Right click to deactivate the Create Crystal Shape tool

› *Save*

Export to Machine

› *File>Export>Crystals to machine*

› Print design printouts as needed.

› Determine the number of templates that will be created (one with all colors or one for each color).

› Export the file(s) to the machine to create the crystal templates.

Create a Crystal Design with different Colors

- Crystal Fill
- Contour Fill
- Changing horizontal and vertical values
- Editing Crystals and Nodes

Every crystal fill object that is created can be adjusted with the options that appear in the Object Properties toolbar. Change the fill pattern, the spacing between the crystals, the crystal size, the crystal color/shape and other options that will be explained through examples in this section.

Prepare the graphic

› *File>New>Select appropriate fabric type/color>Next*

› Select *From File*, and browse to Bird and Tree.*TIF>Open (C:\Users\Public\Documents\BERNINA DesignWorks Samples\Training\Bird and Tree.TIF)*

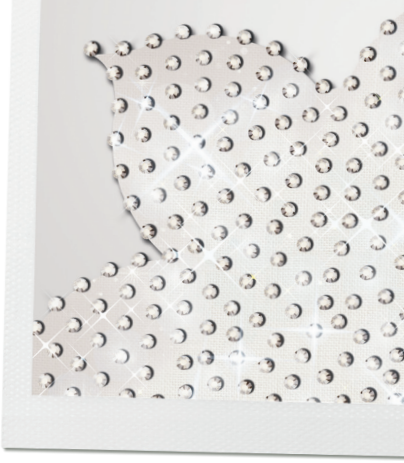
› Select *BERNINA Large Oval Hoop with Foot #48>Next*

› Select *Trace>Next, no changes needed, select Trace>Finish*

› *View>Backdrop>Hide*

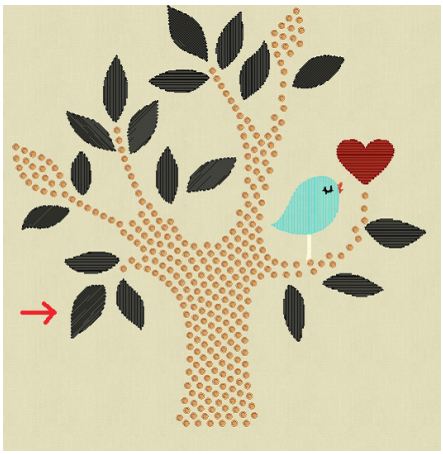
› Select the *filled background>Delete*

› *File>Save As>Navigate* to the folder in which the design will be stored, rename and Save



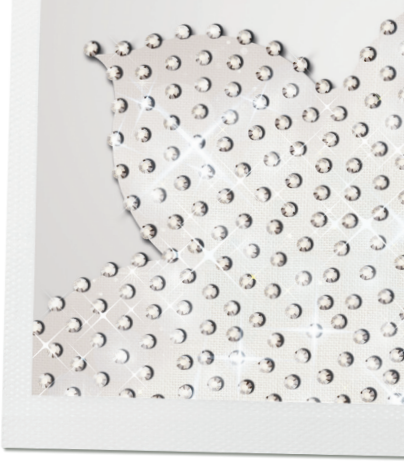
Fit to Shape

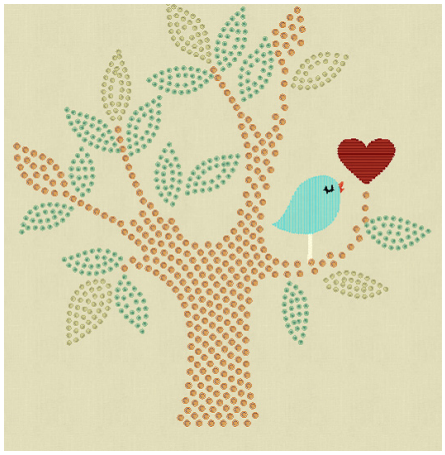
- Select the tree
  Note: the software included the leaves connected to the branches as part of the tree object.
- From Object Properties>Fill, change the fill type to Crystal fill
  Note: if Object Properties window is not visible select *View>Tool Bars>Object Properties.*
- Palette-Swarovski round, Size-SS 10, Color-Smoked Topaz
- Fill - Shape fit
- Experiment with the spacing and angle values
- Press enter after each change to view the results on the workspace.
- Suggested values:
  - H-spacing: 2.0
  - V-spacing: 1.5
  - Start angle: 45



Contour Fill

- Select the leaf on the lower left side of the tree.
- From *Object Properties>Fill*, change the fill type to Crystal fill
- Palette-Swarovski round Size-SS 6, Color-Khaki, Fill-Contour
- Experiment with the spacing and Offset values; note the Offset adjusts the position of the Crystals in relation to the object outline but does not affect the spacing between the Crystals.
- Press enter after each change to view the results on the workspace.Suggested values
  - H - spacing: 1.6
  - V- spacing: 1.5
  - Follow angle
- Select the leaves to the right and left of the newly Crystal filled leaf (select one, hold down the CTRL key and select the second).
- From *Object Properties>Fill*, change the fill type to Crystal fill Palette-Swarovski round:
  - Size - SS 6
  - Color- Palace Green
  - Fill - Shape Fit
    Note: the shape of the object significantly impacts the look of the Crystal Object.





- Change the Fill to Contour
- Select a few of the remaining leaves (select one, hold down the CTRL key to select as many as desired):
- From *Object Properties>Fill*, change the fill type to Crystal fill Palette-Swarovski round:
  - Size-SS 6
  - Color-Khaki
  - Fill-Contour - Click away to deselect
- Select the remaining leaves and from *Object Properties>Fill*, change the fill type to Crystal fill Palette-Swarovski round:
  - Size-SS 6
  - Color-Palace Green
  - Fill-Contour - Save

Editing the Nodes

- Select the heart:
  - Activate Autoborder
  - To the Outside
  - Distance 1
  - Repeat 1
  - Type Running - *Ok*
- Select the Selection Tool and select the filled center of the heart
  - *Object Properties>Fill>select Crystal Fill*
  - Palette-Swarovski round
  - Size-SS 6
  - Color- Fuchsia - Select Edit Shape nodes from the Tools Toolbar
    Note: Be sure Edit Outline is unchecked in the Tool Options.
    If Tool Options are not visible, from the main menu select *view>Toolbars>Tool Options*
- Experiment with alternate fill options
  Note: Changes made to the nodes are reflected in the values indicated in the Object Properties box.
  Recommended settings:
  - Contour
  - H Spacing: 2.0
  - V Spacing: 2.0
  - *Checked>Follow Angle*

› Select the heart outline
  - *Object Properties>Outline>select Crystals*
  - Palette-Swarovski round
  - Size-SS 6
  - Color-Burgundy
  - Offset-2
    Note: that the offset value alters the distance the row of crystals is from the object outline, it does not affect the distance between each crystal.
  - Spacing 1.5
› Select the Bird (note the legs will be selected along with the body.
  - *Object Properties>Fill>select Crystal Fill*
  - Palette-Swarovski round
  - Size-SS 6
  - Color-Capri Blue
  - Fill-Shape Fit with default settings - *Save*

The Details

- Select the bird's eye, beak and white inside leg area>Delete Activate Create Crystal Shape
  Note: Create Crystal adds single crystals
- From the Tool Options, select Color-Dark Indigo, Size SS16
- Click on the bird to place a crystal eye.
- From the Tool Options, select Color-Sun, SizeSS6
- Add crystals to create a beak for the bird.
- Right click to deactivate the Create Crystal Shape - Save

Editing the Design

Note: that there are places in the design that have crystals placed very close together (the beak and the heart) as well as areas that could use a few added crystals (the center of the heart).

- To Edit the heart, select both the inside and the outline of the heart; move them up away from the bird. Tip-use the arrow keys on the keyboard to move in small increments.
- Activate the Create Crystal Shape
  Note: Create Crystal adds single crystals
- From the Tool Options, select Color-Fuchsia, Size SS6
- Click to set a crystal in the open spaces within the heart. Right click to deactivate the tool. *File>Save As>*add Edit 1 to the *file name>save*
- From the main menu, *select View>Overlapping Crystals*
  An X will appear over any areas within the design that have overlapping Crystals.
  Tipp: the Bird's eye.
- Click on the bird, from Object Properties select Separate to Crystals. Caution, once this is done, the bird will be viewed as individual crystals and no longer one object.
- Right click*>ungroup*. Click away to deselect.
- Select and delete any of the crystals covered by the Bird's eye.
- Save
- *File>Export>Crystals to Machine* This design features a number of crystal color changes and sizes.
- Consider creating a separate template for each color for simplicity in setting the crystals.
- From the Templates Dialog box, select color 1 and review the image to confirm there is ample distance between the stones (no overlapping areas).
- Export the file.
- Repeat for each color in the design.