Single Part - Interface/General Functions

Current Item: Single Part- General Functions

Description

De & Material Part Details Settings Tools Select Material:	Manuf Warring Daplay	Der 2.0 Cut Length: 89 Material: 2.25 Round 16 guage Part Weight: 0
225 Round 16 pulge Select Dec 20 Cuton CLR Detailed List Deploy Spring Angle	Wall Thickness: 0.07 Weight: 0.00 CLR: 2.00 Calibrated CLR: 2.24 Bend Location Offset: 0.00	A 8 Location Rotation Angle Spring Angle CLR Bend Length Orientation 1 43 N 0 90 2.00 3 From State
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Whenever a single part (Template, Custom Part, Custom 3D Part, XYZ Part, or Reverse Design) is being created, the interface will generally be the same for each with the exception of the part information/creation section below the tabbed menu. The screen is broken up into four sections with a small icon menu near the top of the frame. The top right corner holds the tabbed section, the top left corner holds the results table, the bottom left is the 3D part display, and the bottom right is the part information/creation section.

How-To

Icon Toolbar



At the top of the frame just below the main menu bar, there is a series of icons.

Click the blank page (New Part) icon to open the new design menu. The New Design menu contains the options to create a new design, open a file, import a file, access manuals or support, and shows a list of recent files.

Click the multicolored square (New Assembly) icon to open a new assembly window. See the <u>Assembly</u> page for further information on creating an assembly.

Click the grey shape (New Plate) icon to open a new plate window. See the <u>Plate</u> page for further information on designing a plate.

Click the yellow folder (Open Part) icon to open a part file. Select a part (.btx or .bez) file from the Open menu and click 'Open' to bring the part into a new design window.

Click the folder holding an assembly (Open Assembly) icon to open an assembly file. Select an assembly (.bta) file from the Open menu and click the 'Open' button to open the assembly in an Assembly design window.

Click the folder holding a plate (Open Plate) icon to open a plate file. Select a plate (.btp) file from the Open menu and click the 'Open' button to open the plate in a plate design window.

Click the blue floppy disk (Save) icon to save the current active window's progress. If the current window is a new and hasn't been saved previously, the part will need to be given a name and location. Click 'Save' in the Save window to save.

Click the printer (Print) icon to print the part's setup sheet. To add or remove anything from this page, check/uncheck any of the printing options in the Settings tab in the tabbed section near the upper left corner of the part design frame.

Click the page/magnifying glass icon to view a preview of the setup sheet. Use the icons in the top left corner to adjust the zoom and the amount of pages shown. Click the 'Print' button to print the setup sheet. Click 'Close' to close the print preview without printing.

Click the red Solidworks icon to import a part file from Solidworks that has been sent to Bend-Tech.

Click the 'Home' button to reset the 3D part display to its original default view.

Click the 'Zoom Fit' to zoom all the way in on the current view of the 3D part display and fit it to the display frame.

Tabs

In the top right corner, there is a tabbed section that holds a majority of the design options.

Die & Material:

	1				
Die & Material	Part Details	Settings	Tools	Manuf. Warning	Display
Select Mate	rial:			Diameter:	2.00
2.0 Hourid			У	Wall Thickness:	0.12
Select Die:				Weight:	0.60
2.0	•	Librar	у	CLR:	2.00
				Calibrated CLR:	2.24
Custom CLR	Detailed I	⊔st		Bend Location Of	fset: 0.00
Display Spi	ring Angle				

Under the Die & Material tab, the material and die can be chosen. To select a die, choose one from the drop down menu below 'Select Material:'. To see more detailed information about each material, click the 'Library' button next to the material menu to view the material library. To the right of the material selection, the diameter, wall thickness, and weight of the selected material will be displayed. To select a die, choose one from the drop down menu below 'Select Die:' or click the 'Detailed List' button. Once the 'Detailed List' button has been clicked, a new window containing a chart of every die in the die library along with detailed information about each. To select a die from this list, click on a die and click the 'Select' button or double click on the desired die. To print this list, click the 'Print' button. Click the 'Library' button next to the die menu to view the die library. To create a custom die CLR, click the 'Custom CLR' button. Enter the CLR value and click 'OK'. This will add the entered CLR value to the drop down menu as 'Custom CLR - (Entered Value). Select the custom CLR from the menu to use it. To the right of the die selection, the CLR, calibrated CLR, and bend location offset of the selected die will be displayed. Check the box next to 'Display Spring Angle' to have spring angle values included in the results table.

Part Details:

Die & Material Part Details	Settings Tools Manuf. Warning Display
	Notes:
Bend Order	To change your default note, use the
Cut-Off Start:	
0	
Cut-Off End:	Revision:
0	Description:

Under the Part Details tab, notes, revision information, part description, cut-off start/end values, and the bend order menu can be accessed. To add notes, type in the field below 'Notes:'. Any notes shown here will be included on the setup sheet. To set a default note, Select 'Options' under the 'Tools' menu and go to the Single Parts tab. If desired, enter any revision information next to 'Revision:' and a description next to 'Description:'. Enter any cut-off values into the 'Cut-Off Start' and/or 'Cut-Off End' fields.

end Order	Transitions		Preset Bend Orders	Start
Order	Bend Number	Orientation	Nomal	0
	1	From Start	Beveraed	
	2	From Start		90 🕛
	3	From Start	Nomal Fip	190
	4	From Start	Opposte Fip	Rotation: 0
			Center Out	Show POB Bac
			Oear Order	Show T.D.C. Le POB Backet Loos
			Simulation Settings	Select
			Travel Speed: 2	_
			Bending Speed: 3	
			0	
			Descent front d	
			-0	
			Animation Speed 14	4
1				Pert
			- Annala	
			Rotary Draw - Cc +	a Same
				- Contra - C
			Gualty:	
			(mana -	

• Bend Order:

Click the 'Bend Order' button to access the 'Part Bending Order' menu. In this window, a simulation of the part being bent is shown along with settings and bending options. In the top right corner there is a tabbed section that holds the Bend Order and Transitions tabs. Under Bend Order, the bend order, number, and orientation can be viewed. To change the bend number or orientation, click on the number or orientation and selected an option from the drop down menu.

Under Transitions, the bend order, number, location, rotation amount, and bend angle are shown. Click on a location, rotation, or angle to view what the part will look like while bending at the selected location, rotation or angle. The part preview will display the 'before' version of the part in red and the 'after' the selected motion in green.



Below the tabbed section, there is a 3D preview of the finished part. This preview can be rotated, panned, and zoomed in/out. To zoom, use the mouse scroll wheel. Scroll up to zoom out and scroll down to zoom in. To pan/move the part around, click and hold the scroll wheel or both mouse buttons down. The part will move with the cursor's movements. To rotate the part, click and hold the right mouse button and move the cursor around. The part will rotate with the cursor movements.



Preset Bend Orders
Normal
Reversed
Normal Flip
Opposite Flip
Center Out
Clear Order

To the right of the tabbed section, under the Preset Bend Orders heading are the bend order buttons. Click 'Normal' to set the bend order to the standard from first to last bend. Click 'Reversed' to completely reverse the order of the bends. Click 'Normal Flip...' to flip the order of bending between two specified bends. After clicking, select which bends to flip between from the drop down menu and click 'OK'. Click 'Opposite Flip...' to reverse the orientation of the bends between two specified bends. After clicking, select which bends to flip between from the drop down menu and click 'OK'. Click 'Center Out...' to Click the 'Clear Order' button to completely clear out the bend order and transitions.



Below the Bend Order button section is the Simulations Settings section. To change the travel, bending, rotation, or animation speed, click and hold the slider and drag it back and forth to adjust the speed. To change which bender used in the simulation, select a bender from the drop down menu below 'Bender:'. To adjust the quality of the simulation, choose an option from the drop down menu below 'Quality'.



The whole right side of the window is occupied by the simulation frame. Any changes made to the bend order will be shown in the simulation. The part will be broken into sections of red and blue. Blue highlights the straight sections of part while red highlights the sections that will be bent. The simulation can be zoomed, moved, and rotated. To zoom, use the mouse scroll wheel. Scroll up to zoom out and scroll down to zoom in. To pan/move the part around, click and hold the scroll wheel or both mouse buttons down. The part will move with the cursor's movements. To rotate the part, click and hold the right mouse button and move the cursor around. The part will rotate with the cursor movements.

To play the simulation click the 'Play' button. To pause the simulation at any point, click the 'Pause' button. To set the simulation back to the beginning, click 'Restart'. To jump to the end of the simulation, click the 'Finish' button. To fast forward the simulation, click the 'Forward' button. After the simulation plays through, the 'Restart' button must be clicked before playing it through again. While the simulation plays, the small window near the upper right corner of the simulation will show the current rotation amount.

To show a POB bracket in the simulation, check the box next to 'Show POB Bracket'. To choose a new location for the POB bracket, click the 'Select...' button and click the desired POB bracket location on the part in the simulation window. To change the color of the bracket, click the 'POB Color' button and select a new color and click 'OK'.

To show a line running down the center of top of the part, check the box next to 'Show T.D.C. Line'. T.D.C. stands for "top dead center".

To print the current view of the simulation, click the 'Print' button. Whatever is shown in the simulation window will be included in the print out. To save the current view of the simulation as a bitmap, jpeg, or png image, click 'Save', give the picture a name, and click 'Save' once again.

Click the house icon button to set the simulation display back to the default view. Click the green box

icon button to zoom fit the current view in the simulation display.

Click 'OK' to close the Part Bending Order window and apply any changes made to the bend order. These changes will be shown in the Results table. Click 'Cancel' to close the window without applying any changes.

Settings:

Create	Edit	Part	Det	ails	Tools	Settings			
Cursor Default Small					Auto-Save Frequency: 5 Minutes -				
	Large	agonai							
Displa	ay Color -				Back	ground Ima	age		
	Background					Choo	se		
	Display E Create P	Backgrou oints at Ir	nd Im nterse	nage ectio	าร				
v	Allow Se	lection of	f End	Poir	ts				
Exclude External Holes									
1	Dim Disp	lay for Fr	ee Se	elect					
~	Automati	cally Swi	tch to	De	sign View	'			

Under the Settings tab, dimension location, machine, measurement units, decimal/fraction tolerance, print settings, and LRA settings can be adjusted.

To change which part of the bend the lengths will be measured to, select an option from the drop down menu below 'Dimension Location:'.

To change which machine that will be used to make the part, choose a machine from the drop menu below 'Machine:'. Once a machine has been chosen here, all of the part's settings will be changed to match the settings of the chosen machine. If necessary, the settings that were brought in by the machine can still be changed.

To change the units, click the circle next to either Inches or Millimeters. (Note: Changing units here will not scale the current units. This will only switch the units used while keeping the same values.)

To change the decimal or fraction tolerance level, click the drop down menu below 'Decimal/Fraction:' and select an option.

Check the box next to 'Print Design Instructions' to have the results table included in the printed setup sheet. Check the box next to 'Print Transitions' to have a chart of each movement needed to bend the part included in the setup sheet. Check the box next to 'Print Tri-Star' to have the XYZ compass/Tri-Star included in the setup sheet. Check the box next to 'Print Dimensions' to have the dimensions shown in the part image on the printed setup sheet.



• LRA Settings:

Click the 'LRA Settings' button to adjust any LRA settings for the part. In this menu, settings specific to rotation, length measurements, rotation/bend angle tolerance, reverse design length/rotation, and some display settings.

Under Rotation, either Incremental or Absolute can be chosen by clicking the circle next to the option. Incremental means the rotation angles will start at the end of the rotation before it. Absolute means the rotation angles will always start from the beginning of the rotation range at each new rotation. Below Incremental/Absolute, there is a list of rotation scales. Choose either -180 to 180, 180 to -180, 0 to 360, or 360 to 0 by clicking the circle next to the option.

Under Length/Location, the method of measuring the lengths of tube can be chosen. Choose either Distance from End, Distance from End- Reversed, or Length of Straight Tube by clicking the circle next to the option. If an index table is in use and there is any offset in between the machine and the table, the offset distance can be entered into the Offset Distance (Index Table) field.

Under Tolerance, the decimal tolerance for rotation and bend angle can be adjusted. To change either of these, select an option from the drop down menu below Rotation Angle or Bend Angle. Each 'n' represents a digit place.

Under Reverse Design - Length, either Incremental or Absolute - Start, End, Center, Start (Reversed), End (Reversed), or Center (Reversed) can be selected by clicking the circle next to the option. This will determine how lengths will be measured when creating a Reverse Design part.

Under Reverse Design - Rotation, Incremental, Incremental - Reversed, or Absolute: 0 to 360, 360 to 0, 180 to -180, or -180 to 180 can be chosen by clicking the circle next to the option. This will determine how and on which scale the rotations will be measured when creating a Reverse Design part.

Check the box next to 'Display parentheses () for negative values' to have any negative values used surrounded by parentheses. Check the box next to 'Display Length of Bend' to have Bend Length included in the results table. Check the box next to 'Display Degree Symbol' to have a degree symbol shown with any angle measurements in the results table.

To set the current selections as the default values, click the 'Set Defaults' button. To reset the defaults

back to the original default settings, click the 'Restore Defaults'. The default settings can be accessed in the Tools menu by clicking 'Options' and accessing the 'Design Settings' tab. Click the 'OK' button to save any changes and close the window. Click 'Cancel' to to close the window without saving any changes.

Tools:

Die & Material	Part Details	Settings	Tools	Manuf. Wam	ing	Display
Verif	y	Pr	ice	W	ite N	C Code
Flat Lay	/out	Displa	ay XYZ	l Ir	nch v	s MM
				M	ovet	o Origin
Send Part	To:					
		-	Submit			
Ret Verity X -54.668 1: 5.005 Z	0.000			0.0 1		
Top Left Front						
Bottom Right Back				III		
L. L.						
vertical distance: 3.80 vertical distance: 3.823						
Linear bistance: 5.184 Angle: 42.888				111		
Part See Seal						
Grap to Grad Grad Spacing 10.0				—		
2 Westame Daplay						
				Com		

• Verify:

Click the 'Verify' button to open the Part Verify window. In this window, distances and the angle between two points can be verified. To change the view of the part, select Top, Left, Front, Bottom, Right, or Back. To zoom in/out, use the mouse scroll wheel. To move/pan, click and hold the scroll wheel or both mouse buttons and move the cursor around. Place points by clicking on or around the part display. One two points have been selected, the horizontal, vertical, and linear distances along with the angle will be shown. A visual representation of the angle will be shown directly below the angle value. The size of the points can be changed by selecting a size from the drop down menu next to 'Point Size:'. To have all point selections restricted to a grid, check the box next to 'Snap to Grid'. Adjust the grid spaces/size by entering a value into the 'Grid Spacing:' field. While the 'Wireframe Display' box is checked, the part preview will be shown in wire frame. If unchecked, the preview will be shown as a solid shaded model. The XYZ coordinates of the current cursor location will be display at the very top of the Part Verify window.

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art Sax Ind • Revelors Desite A	22	

• Flat Layout:

Click the 'Flat Layout' to open the Flat Layout window. Two flat, unbent models of the same part will be displayed.

On the left side of the window is occupied by the Display Dimensions section. Under Left/Right Model, the left and right models each have the option to display the start, center, or end of the bends. Check the box next to the desired option(s) to have them displayed on the part display. Under Bends, check Rotations, Angles, and/or CLR to have them displayed on the part display. Rotations and angles will only be shown on the right model while CLR is only shown on the left. Under 'Fraction/Decimal Display:', the decimal or fraction tolerance for the part display measurements can be chosen by clicking an option from the drop down menu. Changing the point size can by done by choosing a size from the drop down menu below 'Point Size:'.

Below the Display Dimensions section is the Dimensions section. Click the 'Move' button to change the location of any of the displayed dimensions. Once the button has been clicked, each dimension will have a blue dot next to it. Click on the dot and move the cursor to a new location and click again to place the dimension. Click the 'Suppress' button to remove a dimension from the display. Once clicked, each dimension will have a blue dot next to it. Click on the dimension to remove it. Click the 'Display All' button to have all dimensions that were previously suppressed displayed again.

On the right side of the part display, a small 3D part preview is displayed along with some basic information of the part and any notes that were added to the part. Click the 'Print' button to print the current view of the flat layout, 3D model, part information, and notes. Click the 'Close' button to close the Flay Layout window.

Rat Layout - Sizes		Rat Layout - Abbreviations
Text		Angle:
1		Ang.
Stand off Dimen:	Stand-off Rotation:	Rotation:
1	1	Ret.
Stand-off - Angle:	Stand-off - CLR:	Centerline Radius:
1	1	CLR
lat Layout - Colors	Ted	

Below the part display, there is a 'Display Settings' button. Click to access the settings for the flat layout display. Under Flat Layout - Sizes, the text size along with the stand-off (distance between dimension lines and the part surface) values for dimensions, angle, rotation, and CLR can be adjusted.

Under Flat Layout - Abbreviations, the abbreviations for angle, rotation, and centerline radius can be changed. To change, enter a new abbreviation into the field next to any of the options. These abbreviations will only be applied to the flat layout display. Under Flat Layout - Colors, the colors of the tube, bends, extensions, and text can be changed. To change color of any of these features, click the button and choose a new color in the Color menu. The buttons will display the currently selected color of the feature. Click the 'Set Defaults' button to set the current selected sizes, colors, and abbreviation as the defaults in the Global Settings (These can be accessed through the Tools menu in Options). Click the 'Restore Defaults' button to reset the settings back to the original default settings.



Click the 'Price' button to access the Price List. In this menu the total costs for a single part, along with a specified amount of the current part can be seen. A chart containing the part's material, length, bend number, die, labor, and cost and time for each. These cost settings can be set up in the Tools Menu under Pricing Settings. To add another column that will calculate the price for a specified amount of the part, enter a value into the Quantity First Field area or adjust the amount using the up and down arrows. Up to two extra columns can be added. To add a second column, enter a value into the Quantity Second Field or adjust the amount using the up and down arrows. To adjust the size of the columns, place the cursor over the vertical dividing line at the very top of the chart in the title area. A double ended arrow will appear, just click and drag back and forth to increase or decrease the column size. To print the current view of the Price List chart, click the 'Print' button. Click 'Close' to close the Price List window.

• Display XYZ/LRA: (Excludes XYZ Part Design)

Depending on which coordinate mode is in use in the Results Table, this button will display either 'Display XYZ' or 'Display LRA'. When one mode is in use, the opposite will be shown on this button. Click this button to toggle between them. The results tables for the same part are shown below; LRA table on the left and XYZ table on the right.

Α	В	Location	Rotation	Angle	Spring Angle	CLR	Bend Length	Orientation
1	1	16	0	45		4.16	3	From Start
2	2	23	0	45		4.16	3	From Start
3	3	46	0	45		4.16	3	From Start
4	4	53	0	45		4.16	3	From Start
		Point	×		Y		7	
Sta	nt	- On K	-17		0	0		
1			-17		17.586	0		
2			-11.586		23	0		
3			11.586		23	0		
4			17		17.586	0		
En	Ь		17		0	0		

- Write NC Code: ***
- Inch vs MM:

Clicking the 'Inch vs MM' button will convert the current units to the other. These changes will be shown in the results table, part information/design section, and 3D part display.

• Move to Origin: (Specific to XYZ Part)

Click the 'Move to Origin' button will make it so the starting point of the part will be located at (0, 0, 0). All other points on the point will be adjusted accordingly, so the design will remain the same once the origin is shifted.

• Send Part To:

To send the current part to a difference design interface, select either <u>Custom 3D Part</u>, <u>Assembly</u>, or <u>Plate</u> from the drop down menu and click the 'Submit' button. This will open the part into a new window with the selected interface.

Manuf. Warning:



Under the 'Manuf. Warning' tab, manufacturing warnings will be listed if any are available. While there are warnings, a red block will be displayed above the tab. The bend number, description of the problem, and any action that can be taken will be listed for each warning. If an auto-fix is available, double-click on the auto-fix description to execute the auto-fix.

Display:

Die & Material	Part Details	Settings	Tools	Manuf	. Waming	Display	
Part Display M Shaded - Med	lode: lium ▼	Cut-Off C	olor:		Displa	ay Dimensi cation Poin	ons
Tri-Star Scale:	:	🔽 Displa	y Cut-Off	:			
·		🗸 Displa	y Apex G	iuides			
Dimension Siz	e:	🔽 Displa	y Tri-Star	r			
1		🔽 Displa	y Materia	al Thickr	ness		

Under the Display tab, settings specific to the 3D part display can be adjusted in this tab. Click the button below 'Cut-Off Color' to change the color that cut-off lengths will be displayed in. This button will display the current color that is in use. To change the size of the Tri-Star or Dimension text, enter values into either of the 'Tri-Star Scale' or 'Dimension Size' field.

Check the box next to 'Display Dimensions' to have the length measurements and markers displayed in the part display (Specific to Template).

Check the box next to the 'Verification Points' to display blue points on each bend and the start and end of the part (Specific to Template).

Check the box next to 'Display Cut-Off' to have any cut-off lengths that were entered in the 'Cut-Off Start or End' fields in the Part Display tab shown in the part display.



Check the box next to 'Display Apex Guides' to to show lines extending from the bend verification points to the part.

Check the box next to 'Display Tri-Star' to have the XYZ compass/tri-star displayed in the part display. Check the box next to 'Display Material Thickness' to have the hollow center of the tube (determined by the chosen material's wall thickness) displayed instead of just a solid part.

While any of these options are unchecked, they will not be shown in the 3D part display.

Part Display

On the lower right side of the window is the 3D preview of the part. While creating a Custom, Custom 3D, XYZ, or Reverse Design part, the current bend and/or length will be highlighted in red while the bend is either selected or while the bend/start/end coordinate row is clicked in. This preview can be adjusted by zooming, panning, and rotating. To zoom, use the scroll wheel on the mouse. Scroll up to zoom out and scroll down to zoom in. To pan/move the part preview, click and hold the scroll wheel or both mouse buttons and move the cursor around. The part preview will move with the cursor. To rotate, click and hold the right mouse button. Move the cursor around and the part will rotate with the cursor movements.



Results Table

In the upper right corner of the window, the results table is shown. The top section of the results table shows the die, material, cut length, and weight of the part. This entire section's color will indicate if any problems exist. If the section is green, it means the part is complete and there are no problems or manufacturing warnings. If section is orange, the part is complete, but some problems or warnings exist. If the section is red, the part is not complete and/or there are warnings or problems with the part design. The results table also holds a chart that lists each bend along with the bend order, location of the bend, amount of rotation needed for the bend, angle of the bend, spring angle value, centerline rotation, bend length, and the orientation of the bend. Double click within this chart to view a full size version in a new window. In this new window, click the 'Print' button to print the chart.

Die: 2.0 Cut Length: 73 Material: 2.0 Round Part Weight: 43.8639628908135							3135	
Α	В	Location	Rotation	Angle	Spring Angle	CLR	Bend Length	Orientation
1	1	17	0	45		2.00	2	From Start
2	2	24	0	45		2.00	2	From Start
3	3	47	0	45		2.00	2	From Start
4	4	55	0	45		2.00	2	From Start

Print	8	Location	Rotation	Angle	Spring Angle	CLR	Bend Length	Orientation
1	1	17	0	45		2.00	2	From Start
2	2	24	0	45		2.00	2	From Start
3	3	47	0	45		2.00	2	From Start
4	4	55	0	45		2.00	2	From Start