

Cadfil – Pipe Winder Data Entry Sheet

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Main Options Fibre Create Menu Payout View Menu RTM View Menu QuickCAD NC Post-Process Utilities Help

Quick-CAD
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Multi-Layer Pipe Winding

Cylinder Radius	<input type="text" value="100.000"/>	<input type="button" value="Open"/>	<input type="button" value="Add Layer"/>
Clearance Radius	<input type="text" value="150.000"/>	<input type="button" value="Save"/>	<input type="button" value="Delete Layer"/>
Fibre Band Width	<input type="text" value="25.000"/>	<input type="button" value="Exit"/>	<input type="button" value="Insert Layer"/>
Band Thickness	<input type="text" value="0.400"/>	<input type="button" value="Help"/>	Band Pattern Mode Select
Start Position (from Chuck/Ref. Pt)	<input type="text" value="300.000"/>	<input type="button" value="Calculate (Update)"/>	<input type="text" value="0: Automatic, Use Minimum Dwell"/>
Total Length Of Winding	<input type="text" value="3000.000"/>		Feed Rate Mode Select
Friction Coefficient e.g. 0.2	<input type="text" value="0.150"/>		<input type="text" value="0: Constant F value"/>
Mandrel Rotation +1/-1	<input type="text" value="1"/>		<input type="button" value="Generate NC Data"/>

Layer Number	Hoop	Helical	Number of Repeats	Wind Angle	% Cover Factor	Machine Feed-Rate	Circuits per Layer	Band Pattern Number	Dwell Rotation at each End	Wind Time (Minutes)	Waste Length
1	<input checked="" type="radio"/>	<input type="radio"/>	3	82.721	100	22000	1	1	12.431	0.432	0.758
2	<input type="radio"/>	<input checked="" type="radio"/>	1	45	100	15000	18	7	2.79	8.98	289.25
Final Thickness					<input type="text" value="2.00"/>				Total Wind Time	<input type="text" value="9.412"/>	

Running

Cadfil – Pipe Winder Data Entry ‘Header’ Information

Mandrel and machine clearance data.

Cylinder Radius	100.000	Open
Clearance Radius	150.000	Save
Fibre Band Width	25.000	Exit
Band Thickness	0.400	Help
Start Position (from Chuck/Ref. Pt.)	300.000	Calculate (Update)
Total Length Of Winding	3000.000	
Friction Coefficient e.g. 0.2	0.150	
Mandrel Rotation +1/-1	1	

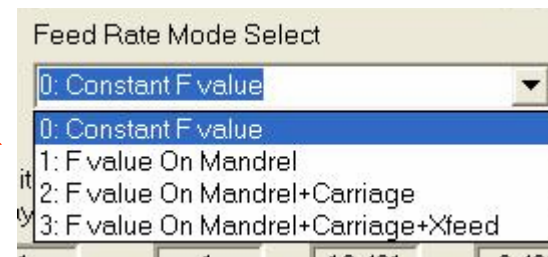
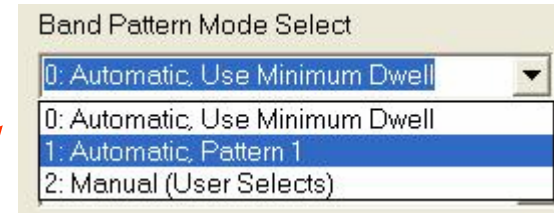
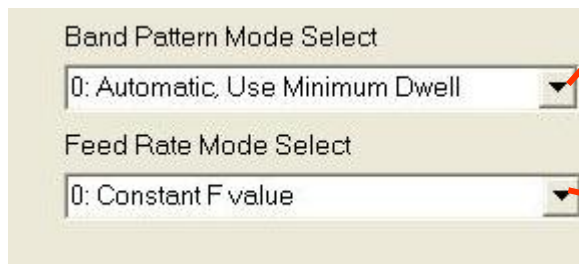
Get saved data from a file.

Save new or modified data to a file.

Fibre band data. The thickness updates for each layer to keep the winding angle accurate.

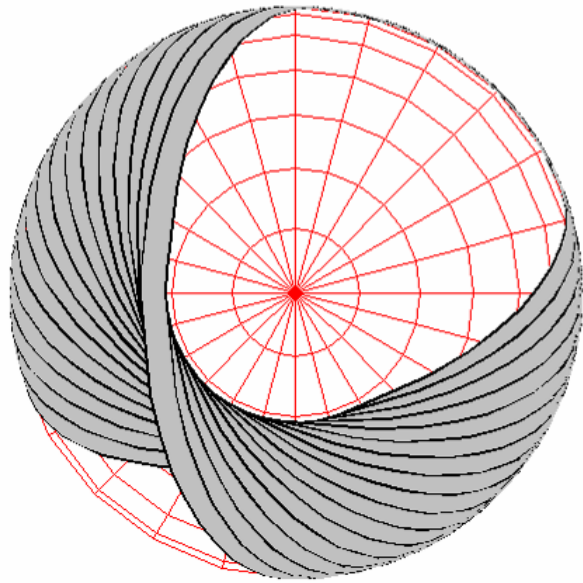
Data that is constant for each layer.

Pull down menu for band pattern selection.
There are three options. The user can choose that a pattern 1 of is automatically selected or the pattern with the smallest dwell is selected. In manual mode the user selects from a pattern table of all possible pattern options for each layer.

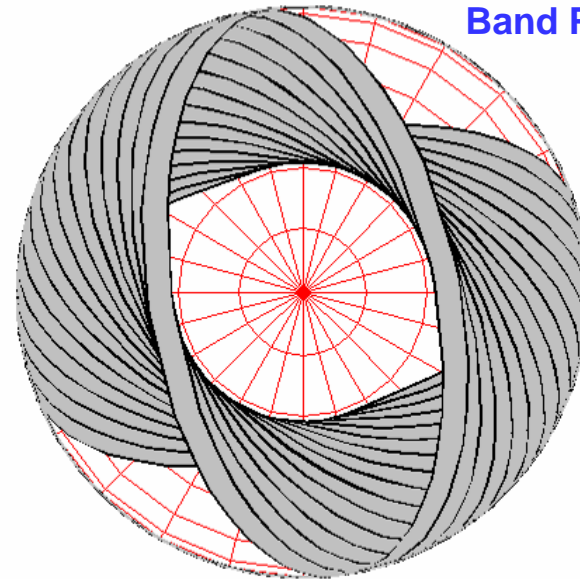


Pull down menu to select the machine speed options.

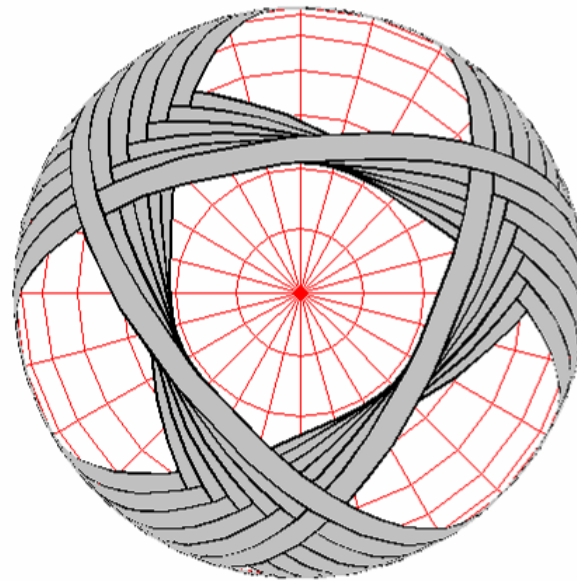
**Different Band Patterns
shown part way through
winding. Images generated
using CADFIL – Pipe Winder
Graphics Module (optional)**



Band Pattern of 1



Band Pattern of 2



Band Pattern of 3

Wind angle calculated from band width automatically for hoop winding.

Layer Number	Hoop Helical	Number of Repeats	Wind Angle	% Cover Factor	Machine Feed-Rate	Circuits per Layer	Band Pattern Number	Dwell Rotation at each End	Wind Time (Minutes)	Waste Length
1	<input checked="" type="radio"/> <input type="radio"/>	3	82.721	100	22000	1	1	12.431	0.432	0.758
2	<input type="radio"/> <input checked="" type="radio"/>	1	45	100	15000	18	7	2.79	8.98	289.25
	<input type="radio"/> <input type="radio"/>									
	<input type="radio"/> <input type="radio"/>									

Layer Sequence Numbers: Up to 10 layers per form can be entered.

Cover factor is 100% by default but the user can over-ride it here.

Automatically generated data when the 'Calculate' button is clicked.

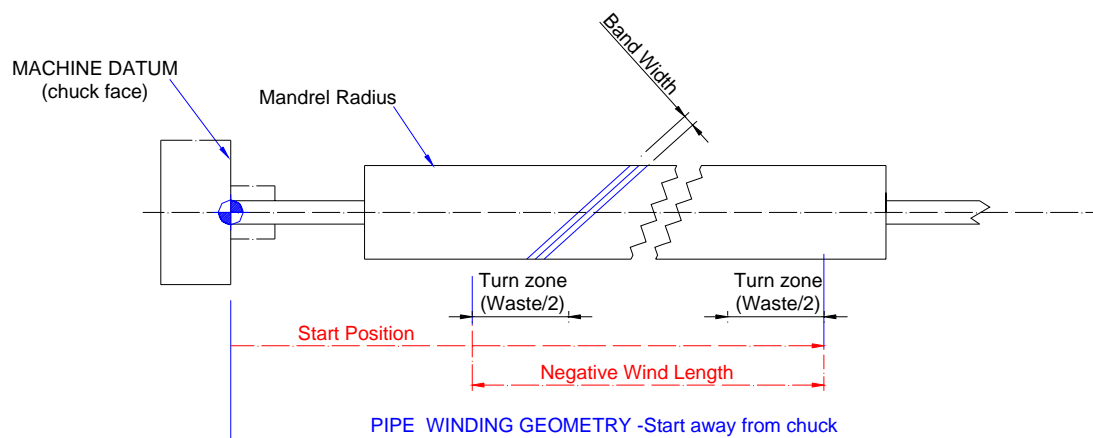
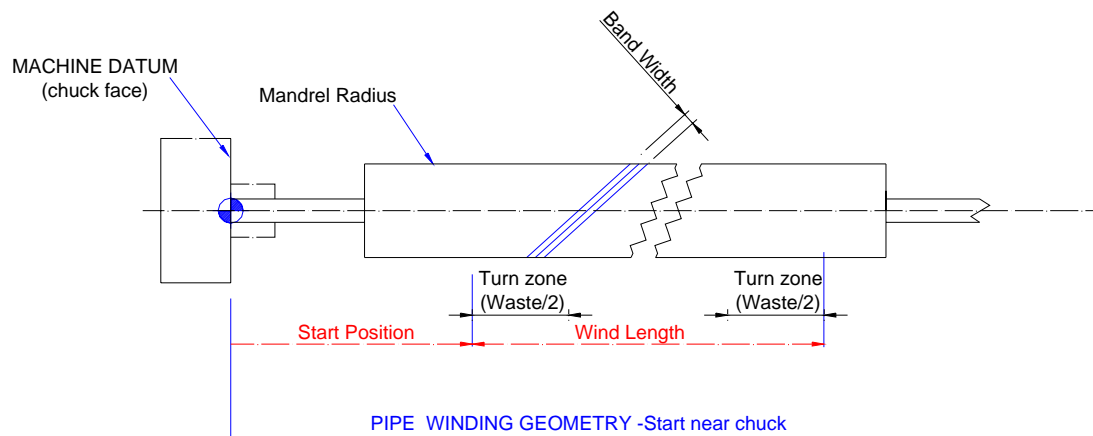
Control buttons to Add, Delete or Insert layer data into the table.

A screenshot of a software control panel. It features three buttons stacked vertically: 'Add Layer', 'Delete Layer', and 'Insert Layer'. Below these are two dropdown menus labeled 'Band Pattern Mode Select' and 'Feed Rate Mode Select'. To the right of these dropdowns is a button labeled 'Generate NC Data'. Red circles highlight the three layer management buttons and the 'Generate NC Data' button. A red line connects the first circle to the text on the left.

When the data has been entered the NC file can be generated by a single 'click'.

A screenshot of a software output panel. It shows two input fields: 'Final Thickness' with the value '2.00' and 'Total Wind Time' with the value '9.412'. Red circles highlight both input fields. A red line connects the circles to the text above.

Other Useful information



The Start position can be at either end of the mandrel.

To start away from the chuck and then initially wind towards it use a negative Total Length of Winding (wind length in the lower diagram)

For Hoop winding each repeat (layer) is one traverse of the carriage. If the repeats are an odd number then the next helical layer will automatically swap ends of the mandrel to start. This ensures that the winding is always continuous.