

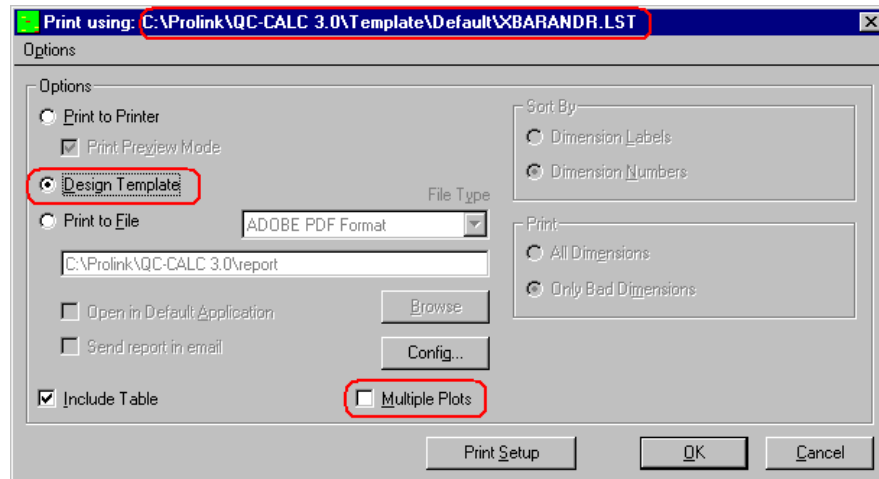
Reporting – Inserting Cpk into XBar & Range

The default XBar and Range report does not show the Cpk value, but it is possible to add that value into the template. This document gives step by step directions for inserting the Cpk value into the default XBar and Range full page template. These same general instructions can be used for inserting other values into reports also.

Getting into the Report Designer

In order to add the Cpk value to the report, the Report Designer must be used. These are the general steps for getting into the Report Designer for the template we are about to change.

1. From QC-CALC SPC choose the **Report – XBar & Range** menu.
2. Choose the dimensions and click **OK**.
3. On the next screen that shows the 2 graphs, click the **Print** button.
4. The next screen is the Print screen. Verify the template location at the top of the screen is the template you want to edit (use the **Options – Select Templates** menu to change the template location or the **Options – Copy Templates** menu to move a copy of the template to a different location) and make sure the **Multiple Plots** check box is unchecked, then choose **Design Template** and click **OK**.



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5. The Report Designer now appears on the screen.

The screenshot displays the 'Design the Template' software interface. The main window shows a report titled 'XBar & Range' for 'Prolink, Inc.'. The report includes the following information:

- Sample Information:** SAMPLE.QCC, Dimension Label: X Hole Position, Dimension Number: 1.
- Specifications:** Upper Specification Limit: 1.0010, Nominal: 1.0000, Lower Specification Limit: 0.9990.
- Control Limits:** XBar Upper Control Limit: 1.00084, XBar Lower Control Limit: 0.99984, XBar Average: 0.99984.
- Range Control:** Upper Control Limit Range: 0.00173, Lower Control Limit Range: 0.00000, Average Range: 0.00083.
- Sample Parameters:** Sample Size: 40, Subgroup Size: 2, Number of Subgroups: 20.
- Control Charts:** Two charts are shown: 'Xbar Control Chart' and 'Range Control Chart', both plotting data points against control and specification limits.
- Data Table:**

Subgrp	XBar	Range	Sigma	Median	Maximum	Minimum	Status
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	
1	1.00045	0.00093	0.00047	1.0004	1.0009	1.0000	

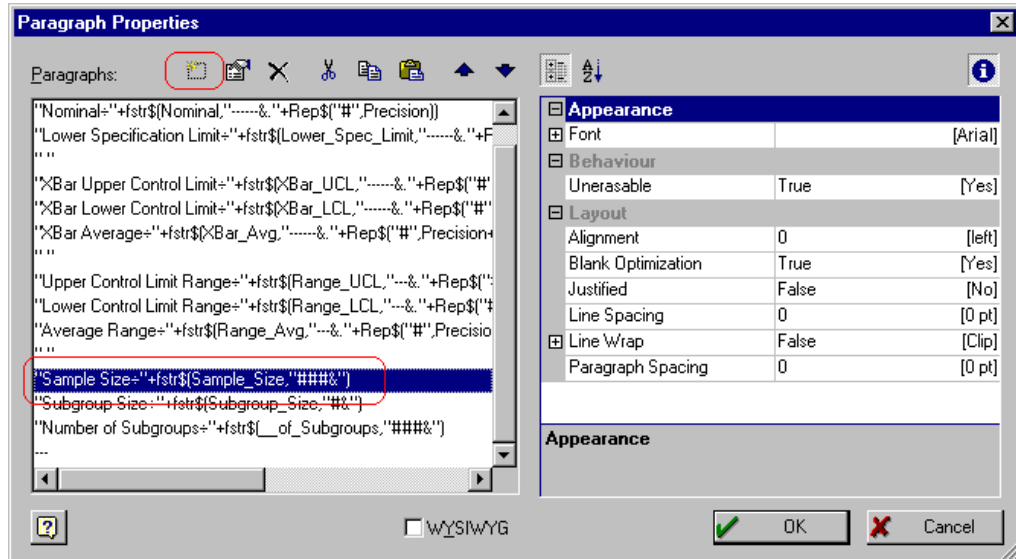
Adding Cpk to the Calculation Box

These directions will talk you through adding the Cpk value to the box that contains the rest of the calculations.

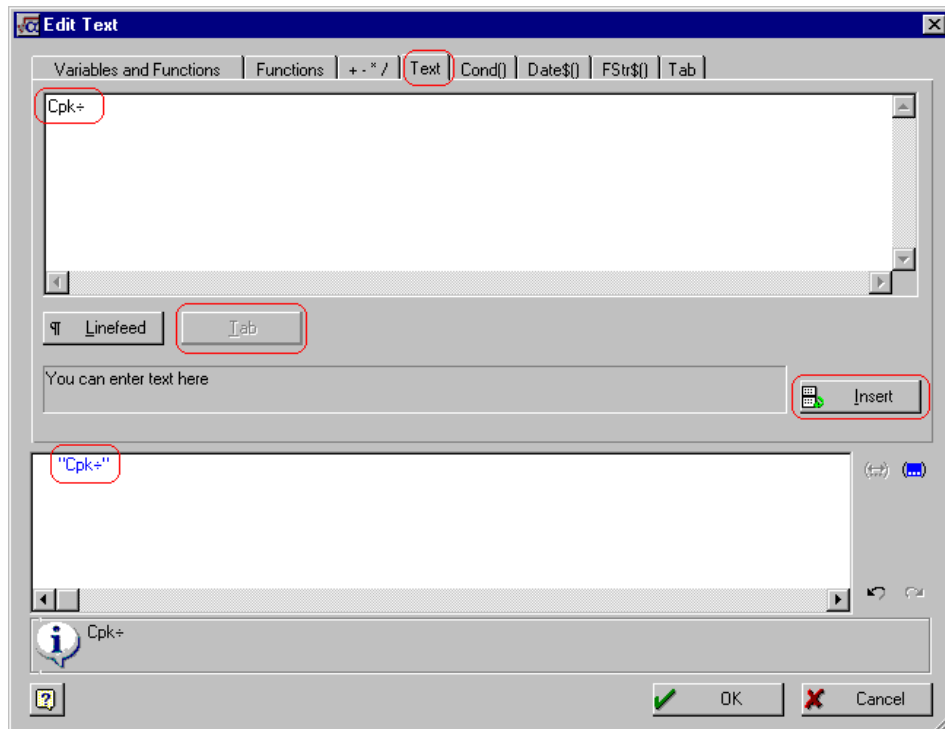
1. In the **Object List** in the upper left corner (**View – Windows – Object List** if it is not visible) double click on the "Data Box 1" object (you can also double click on the item on the right side of the screen and accomplish the same thing).

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- The **Paragraph Properties** window is now displayed. Highlight the line you would like to have below the Cpk line we are going to add and click the **Insert a Paragraph** button.



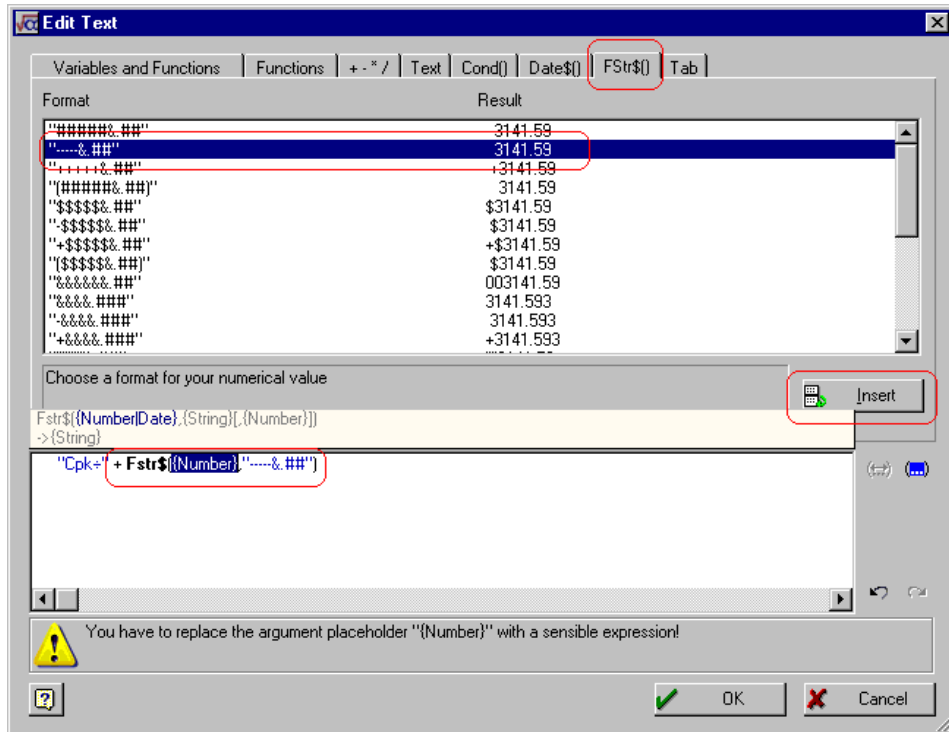
- In the **Edit Text** window that appears, go to the **Text** tab and type “Cpk” in the upper box, then click the **Tab** button (this will insert a ÷ sign after the “Cpk” you typed).



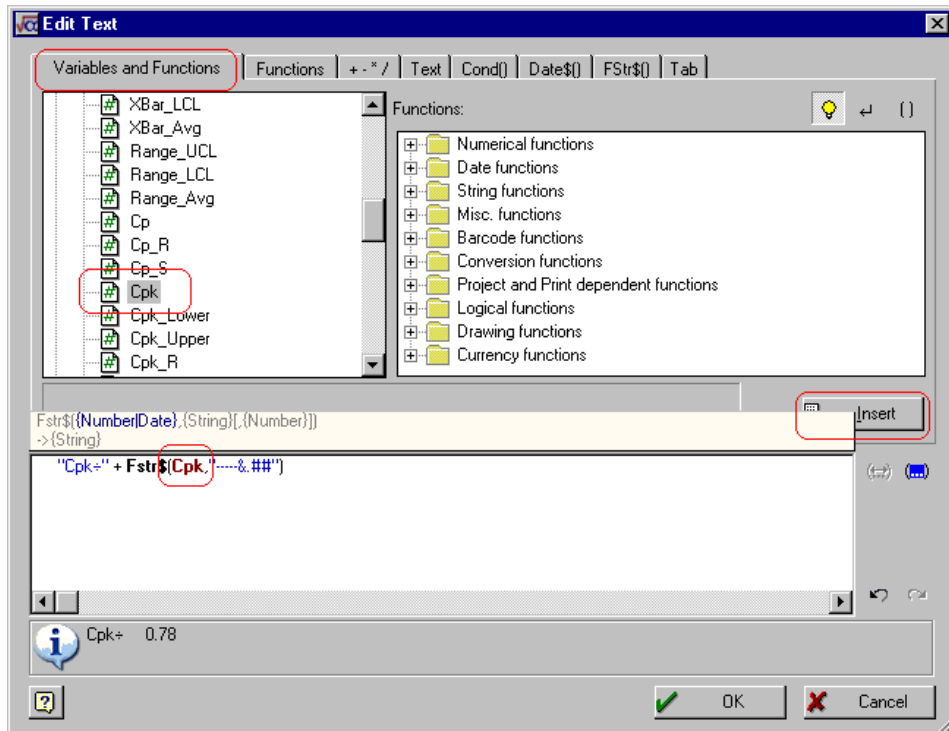
- Now click the **Insert** button. The text you typed will automatically be surrounded by the “ ” that are necessary and shown in the bottom window.

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- Now go to the **Fstr\$()** tab, choose the second format in the list (“----&.##”), and click the **Insert** button. This format can be adjusted to hold more decimal places by adding more # in the bottom window (ie. “----&.#####”).

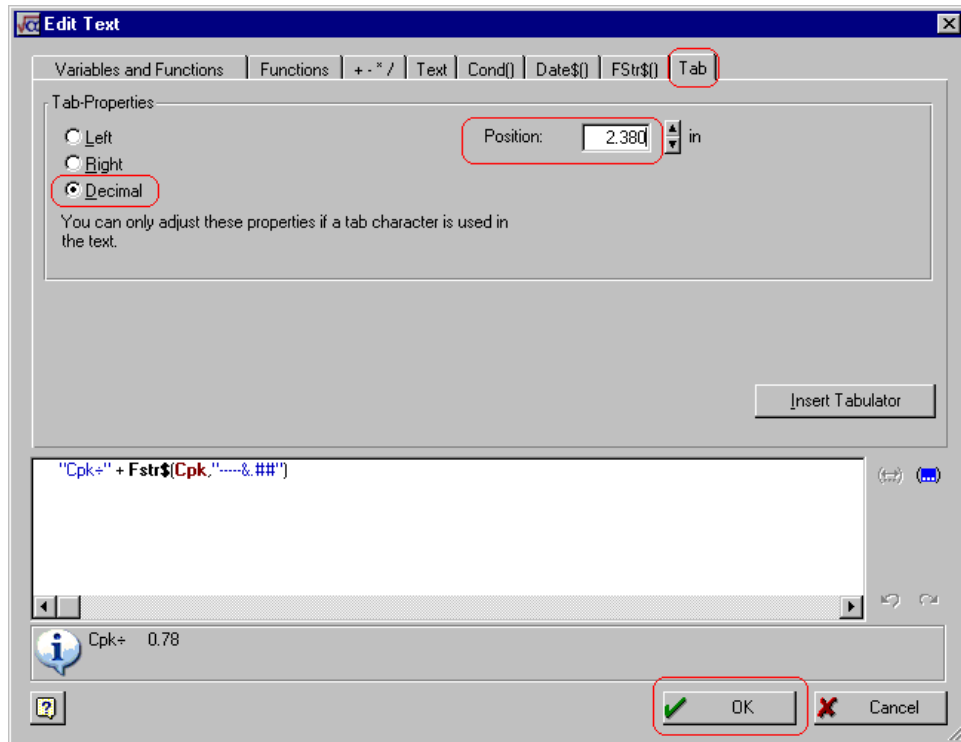


- With the “{Number}” item highlighted in the lower window, click on the **Variables and Functions** tab. Highlight the Cpk value in the Variable list and click the **Insert** button. The “Cpk” variable will have replaced the “{Number}” in the lower window.



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- Now that we have taken care of what will appear on the line, we need to take care of the position of the **Tab** (÷) character we inserted when working in the **Text** tab.
- Click on the **Tab** tab and choose **Decimal** for the type of tab and set the **Position** to 2.380. To verify this value is correct and will line up with everything else you can look at the **Tab** setting for one of the lines around where you inserted the Cpk line.



- Now click **OK** on the **Edit Text** and **Paragraph Properties** windows.
- When you look at the "Data Box 1" area of the **Layout Preview** screen you should now see the Cpk line in the box. Make sure that all lines are still visible. You may need to stretch the window to get enough room for all lines to show.
- Click **File – Save**, then **File – Exit** to get out of the Report Designer and run your report to see how it looks.

Upper Specification Limit	1.5100
Nominal	1.5000
Lower Specification Limit	1.4900
XBar Upper Control Limit	1.50570
XBar Lower Control Limit	1.49381
XBar Average	1.49975
Upper Control Limit Range	0.02178
Lower Control Limit Range	0.00000
Average Range	0.01030
Cpk	0.78
Sample Size	40
Subgroup Size	5
Number of Subgroups	8

Subgrp | XBar | Range | Sigma