

# QI Macros Quick Start Guide

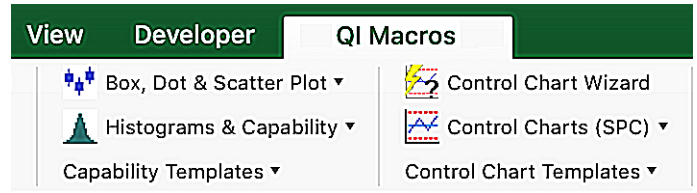
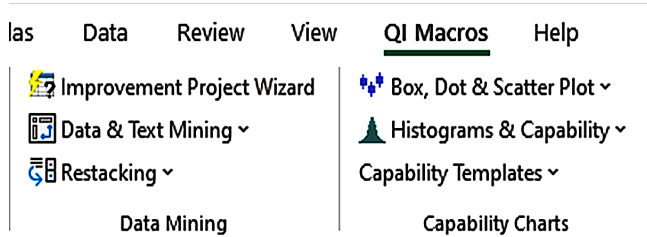
## Install Instructions

Close Excel, then double-click on the QI Macros installation file and follow the prompts:

PC - qimacros-30-day-trial.exe

MAC - QIMacrosTrial.app

Open Excel and find the QI Macros on your Excel menu:



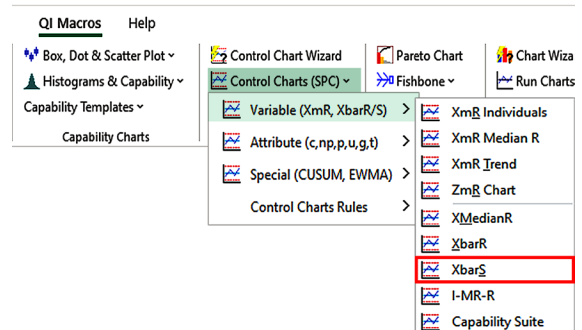
If you don't see QI Macros, visit: [qimacros.com/support/qimacros-tech-support/#NoMenu](http://qimacros.com/support/qimacros-tech-support/#NoMenu)

## Creating a Chart is as Easy as 1 - 2 - 3:

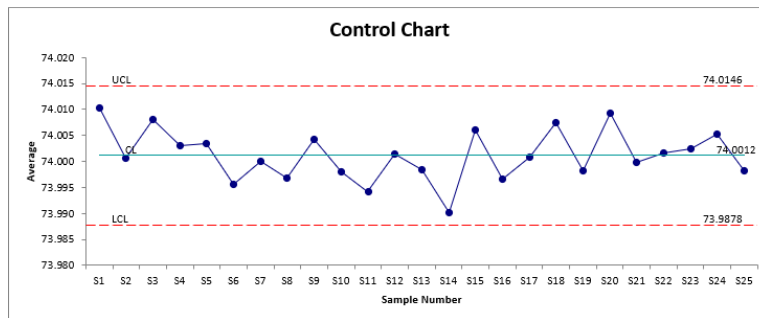
### Step 1 - Select the Data

	A	B	C	D	E	F
1	Sample Number	Obs 1	Obs 2	Obs 3	Obs 4	Obs 5
2	S1	74.030	74.002	74.019	73.992	74.008
3	S2	73.995	73.992	74.001	74.011	74.004
4	S3	73.988	74.024	74.021	74.005	74.002
5	S4	74.002	73.996	73.993	74.015	74.009
6	S5	73.992	74.007	74.015	73.989	74.014
7	S6	74.009	73.994	73.997	73.985	73.993
8	S7	73.995	74.006	73.994	74.000	74.005
9	S8	73.985	74.003	73.993	74.015	73.988
10	S9	74.008	73.995	74.009	74.005	74.004

### Step 2 - Select the Chart



### Step 3 - Get the Chart



## Test Data to Use During Your Trial

1. QI Macros loads test data on your computer at: Documents / QI Macros Test Data
2. Use this data and the examples in this Quick Start Guide to get the most out of your trial!

# Create a Control Chart

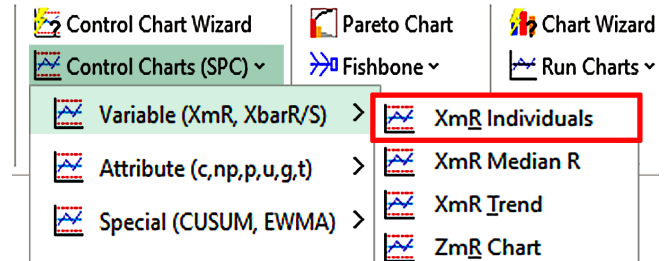
## Step 1 - Select the Data

- Go to Documents > QI Macros Test Data Folder and open XmRChart.
- Click on the Healthcare tab at the bottom of the workbook.
- Click and drag over cells A:1 to B:30 to select them.

	A	B
	Month	Falls/1000 Patient Days
1		
2	Jun-18	3.6
3	Jul-18	4.5
4	Aug-18	4.7
5	Sep-18	6.0
6	Oct-18	4.6
7	Nov-18	3.6
8	Dec-18	7.6
9	Jan-19	7.7

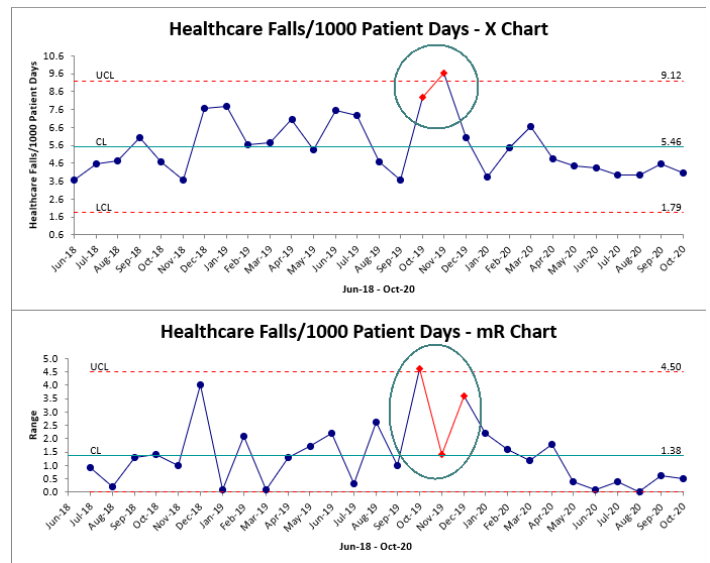
## Step 2 - Select the Chart

- Click on QI Macros > Control Charts (SPC) > Variable (XmR, XbarR/S) > XmR Individuals.
- QI Macros will prompt you for titles.
- Just click OK for this example.



## Step 3 - Get the Chart

- QI Macros will perform the calculations and create the chart for you.
- Since this is an X chart for variable data, QI Macros will create both a Range Chart and an X Chart.
- QI Macros will also turn any unstable points or trends red.



## Not Sure Which Control Chart to Choose?

The QI Macros Control Chart Wizard can analyze your data and select the correct control chart for you.

Just select your data and then click on the Control Chart Wizard.

### QI Macros Help

- Box, Dot & Scatter Plot >
- Histograms & Capability >
- Capability Templates >
- Capability Charts

- Control Chart Wizard
- Control Charts (SPC) >
- Control Chart Templates >
- Control Charts

# Create a Histogram with Cp Cpk

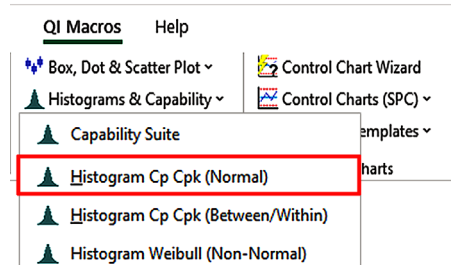
## Step 1 - Select the Data

- Go to the QI Macros Test Data Folder and open “Histogram.”
- Click and drag over cells A:1 to F:21 to select them.

	A	B	C	D	E	F
1	Sample	Obs 1	Obs 2	Obs 3	Obs 4	Obs 5
2	S1	265	205	263	307	220
3	S2	268	260	234	299	215
4	S3	197	286	274	243	231
5	S4	267	281	265	214	318
6	S5	346	317	242	258	276
7	S6	300	208	187	264	271
8	S7	280	242	260	321	228

## Step 2 - Select the Chart

- Click on QI Macros > Histograms & Capability > Histogram Cp Cpk (Normal).
- QI Macros will prompt you for the Upper and Lower Spec Limits.

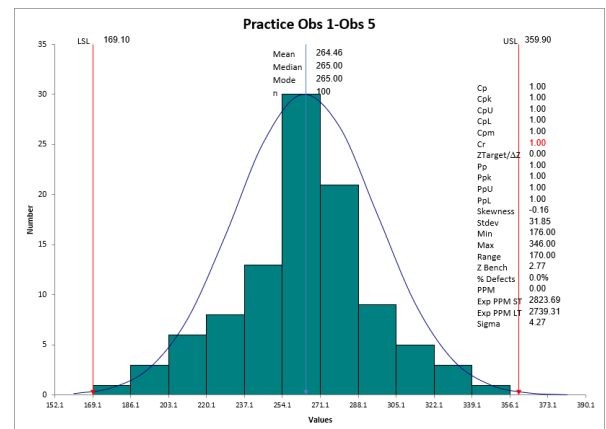


- Type in your Spec Limits or hit OK to accept the defaults. For a one-sided or unilateral tolerance, hit “Cancel.”
- For this example input USL= 359.9, LSL= 169.10, and click OK on the other prompts.

The screenshot shows a dialog box titled 'USL' with the text 'Enter Upper Specification or Tolerance Limit (USL) No USL? Click CANCEL'. The input field contains the value '359.9'. There are 'OK' and 'Cancel' buttons at the bottom.

## Step 3 - Get the Chart

- QI Macros will perform the calculations and create the chart for you.
- Cp, Cpk, Pp, Ppk and other metrics will be shown on the right.
- To view the calculations or change the spec limits or bar widths, go to the data sheet on the tab to the right of the chart.



## QI Macros Tools with Histograms, Capability Analysis and Cp Cpk

Macros can be found under the “Histograms & Capability” drop-down menu.

Templates under the “Control Chart Templates” menu:

- XmR Five Pack
- XbarR and XbarS Six Packs
- Cp Cpk Worksheet
- Capability Suite

# Create a Pareto Chart

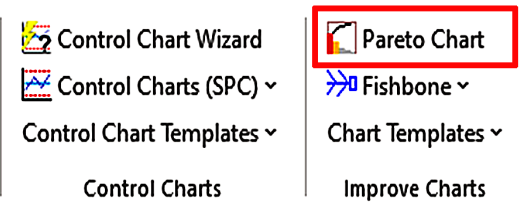
## Step 1 - Select the Data

- Go to the QI Macros Test Data folder and open “pareto.”
- Click and drag over cells A:2 to C:14 to select them.

	A	B	C
1	Carton Manufacturing Defects		
2		Line 1	Line 2
3	Folded flaps	16	6
4	Bent/Damaged flaps	37	22
5	Carton will not open	29	18
6	Poor ink adhesion	7	8
7	Off color	14	5
8	Ink smears/streaks		5
9	Oil spots		
10	Fisheye	9	
11	Missing color		
12	Mislabeled		
13	Damaged Pallet	3	
14	Undercount		2

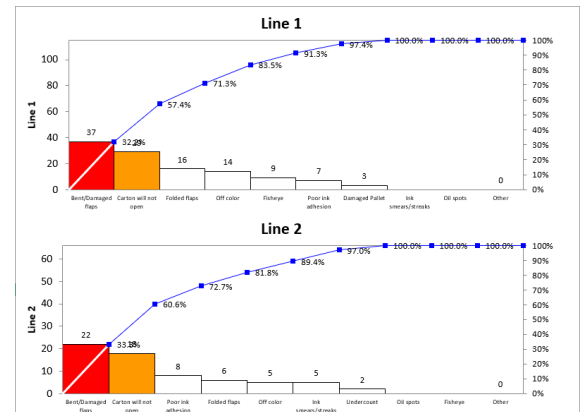
## Step 2 - Select the Chart

- Click on QI Macros > Pareto Chart.
- QI Macros will prompt you for the number of bars you want to summarize after.
- For this example, just click OK to select the default of 9.



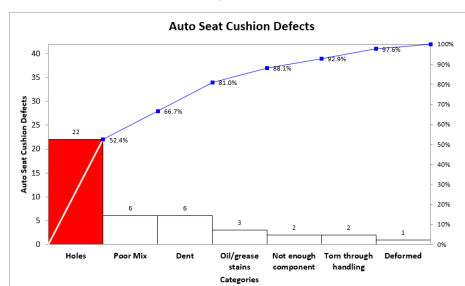
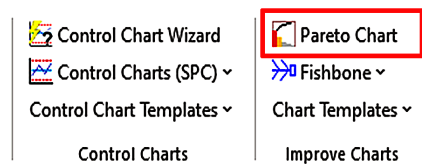
## Step 3 - Get the Chart

- QI Macros will perform all of the calculations and create the chart(s) for you.
- In this example, since we selected 2 columns of data, we will get a pareto chart for each column.



## To Create a Pareto Chart Using Data that Needs to be Summarized

1. Click on the worksheet tab in the pareto file named “Auto Seat Cushion Defects.”
2. Click on cell J:1, then click on QI Macros > Pareto Chart.
3. QI Macros will summarize the data for you and create a Pareto Chart:



I	J	K
Date	Auto Seat Cushion Defects	
12-Aug	Poor Mix	
12-Aug	Poor Mix	
14-Aug	Poor Mix	
14-Aug	Poor Mix	
15-Aug	Poor Mix	
12-Aug	Holes	
12-Aug	Holes	

# Run a Statistical Test

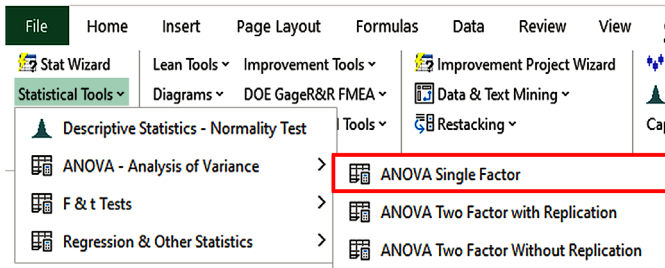
## Step 1 - Select the Data

- Go to the QI Macros Test Data folder and open the Statistical file.
- Click and drag over cells A:1 to E:7 in “Practice” tab to select them.

	A	B	C	D	E
	Hardwood Concentration %	5%	10%	15%	20%
1					
2	Obs1	7	12	14	19
3	Obs2	8	17	18	25
4	Obs3	15	13	19	22
5	Obs4	11	18	17	23
6	Obs5	9	19	16	18
7	Obs6	10	15	18	20

## Step 2 - Select the Statistical Test

- Click on QI Macros > Statistical Tools > ANOVA - Analysis of Variance > ANOVA Single Factor.



- QI Macros will prompt you for the Significance Level.
- Click OK to use the default of .05 for this example.

Significance Level X

Please Enter Level of Significance

Default: 0.05

Options: 0.01, 0.001

## Step 3 - Get the Results

- QI Macros will perform the calculations and even interpret the results for you:
  - Reject Null Hypothesis vs. Cannot Reject
  - because:  $p < \alpha$  or  $p > \alpha$ , therefore,
  - Means/Variations are Different or the Same.
- The interactive output worksheet also lets you change the confidence level ( $\alpha$ ) to determine the impact on the results.

G	H	I	J	K	L	M	N	O
Anova: Single Factor		$\alpha$	0.05					
SUMMARY						LSD	7.272246	
						HSD	9.719438	
						Scheffe	14.97102	
Groups	Count	Sum	Average	Variance		Post Hoc	Data1	Data2
Data1	7	60.05	8.578571	20.80988		Data2	4.864286	
Data2	7	94.1	13.44286	41.17286		Data3	6.014286	1.1
Data3	7	102.15	14.59286	43.22702		Data4	9.592857	4.72857
Data4	7	127.2	18.17143	68.60571				

Colored cells have significant results

ANOVA						Cannot Reject Null Hypothesis because $p > 0.05$ (Means are the same)	
Source of Variation	SS	df	MS	F	P-Value	F crit	
Between Groups	329.6018	3	109.8673	2.528365	0.081	3.008787	
Within Groups	1042.893	24	43.45387				
Total	1372.495	27					

## Not Sure Which Statistical Test to Run?

The QI Macros Stat Wizard can analyze your data and select most of the possible tests for you.

Just select your data and then click the Stat Wizard.

