QC-Gage

Password Protection – The menus in QC-Gage can be password protected to eliminate accidental changes.

Quick Launch Buttons – You can create buttons to quickly open and run Spec Plans and even include pictures of the part for easy button selection.

Current part and feature number

Readings collected this session

Graph to display gage readings

Area to enter new readings

Picture of Part being measured

Non-measurement data area

Feature specific notes area

QC-Gage demo

QC-Gage: Running C:\Prolink\QC-Gage 3.0\Data\GageDemo.spl

Part # 5   Feature 4

Part #	1- Gap1	2- Gap2	3- Width1	4- Dia1
1	0.205	0.200	0.403	0.199
2	0.208	0.195	0.395	0.210
3	0.193	0.208	0.408	0.200
4	0.201	0.202	0.404	0.205
5	0.203	0.205	0.401	0.208

Dia1
0.210
0.200
0.190

Clear   Reading

Enter Measured Value
0.208
mm

Keyboard Accepting Manual Input

Use the V-micrometer on channel 1. Measure at point B

B   Gap1   A
Top View

Operator Laura
Customer 186
Source   8224

Notes   <<Previous   Next->>   Finish   Cancel

Live Professional Technical Support

- **No answering services or machines** – We are dedicated to providing live expert technical support to you. We have refused to follow the trend in today's software industry of automated technical support services.

- **Online technical support resources available** – If you have questions or problems you can access our website to use troubleshooting links, download online manuals, and get up-to-date information concerning QC-CALC software updates.

Distributed By:

Prolink Corporation

Prolink is a growing company that offers easy to use data collection and analysis software. Our goal is to increase your awareness of process problems to save you time and money. The key is to obtain the data without adding cost and reporting the analysis in a timely manner.

Many other SPC packages perform the same analysis functions as QC-CALC, but none offer the automatic database creation that has been our cornerstone. We have listened to your needs and tailored the software based on what we have heard. Since 1983 we have been committed to providing you with quality software programs, no-hassle technical support, and business partnerships that last.

Prolink

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QC-CALC

SPC SOFTWARE SINCE 1983

Automatic Data Collection
So Simple The Graphs Just Appear

Probability Plot

Pareto

Correlation and Regression

XBar Control Chart

Process Capability

Histogram

Range Control Chart

Prolink
DATA COLLECTION/ANALYSIS SOFTWARE

QC-CALC

QC-Gage

QC-CALC is a fully automatic data collection and Statistical Process Control (SPC) software interface for all in-process and after-process inspection.

QC-CALC is divided into 2 parts that can be purchased together or separately:

QC-CALC Real-Time – Data Collection

QC-CALC Real-Time is used to collect and display measurement results from all CMMs, Video CMMs, and in-process inspections without operator intervention. You can create reports and export the data to spreadsheets, databases, and other SPC Programs automatically. This means you can transfer data from all of your measurement machines to any SPC package just by using a single program!

QC-CALC SPC – Historical SPC Analysis

What state is your process in? Is it in an ideal state or on the brink of chaos? QC-CALC SPC can help you answer these questions. This is a complete SPC package that analyzes the data QC-CALC Real-Time collects. Use QC-CALC SPC's charts and reports to constantly monitor your process to keep it in control.

QC-CALC is perfect for:

- **The small shop that has 1 inspection machine** – All of your quality assurance needs can be satisfied with a single program.

- **The larger company that has multiple inspection machines networked** – Data from multiple inspection machines may be saved into a single file on the server, and you can run reports from an office computer to keep the interruptions on the inspection machine to a minimum.

- **Working together with QC-Gage to give a complete solution** – Use QC-Gage to collect data from your hand-held, non-automatic gages, and then the data is passed to QC-CALC to complete your inspection process.

- **Monitoring what is happening on the shop floor** – The Monitoring option in QC-CALC SPC allows you to monitor the inspection of parts on all machines in real-time to quickly catch if your process changes.

- **Fulfilling corporate requirements** – A Site License combined with maintenance and support gives you one solution for all machines currently at your site and for future purchases. QC-CALC can satisfy the corporate requirements by writing the data to your SQL Server or Oracle database.

The automatic database creation, data collection, and data display have been fine-tuned to make the interface so automatic the graphs just appear. Not one keystroke is needed! When data collection and analysis have to be as simple as possible, QC-CALC is the only logical choice.

QC-Gage is a full-featured data collection program for use with hand-held gages. The software allows inspectors to enter measurement data by keyboard or through a direct connection to one or more gages. It displays this data both graphically and in table form, and automatically interfaces with Prolink's industry leading QC-CALC Real-Time. By using QC-Gage and QC-CALC Real-Time, you can identify and isolate out-of-conformance parts or suppliers.
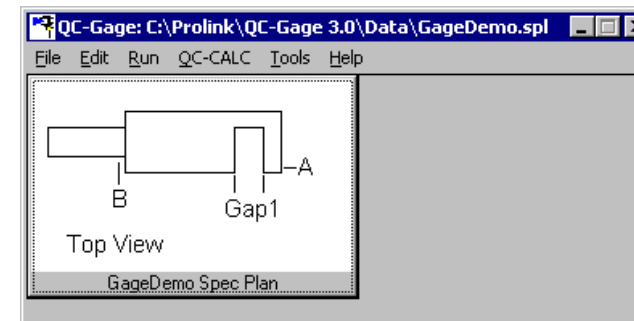
Direct Interface to QC-CALC Real-Time – QC-Gage allows you to choose the number of parts to inspect in each session. Once the session is finished QC-Gage automatically passes the data to QC-CALC Real-Time for display and analysis.

Expandable and Flexible – QC-Gage stores gage definitions in external files so you can add new gages without upgrading the software. Prolink is constantly adding new gage definitions free of charge.

Measurement Feature Definition – QC-Gage allows you to define each measurement feature in detail. When the spec plan is run, QC-Gage shows any instructions given for each feature along with the graph, which shows the Nominals and Tolerances.

You can include the following information when setting up a feature definition:

- Operator instructions
- A picture for reference
- A descriptive label
- Nominal and tolerance values
- Units of measurement
- Number of decimal places
- Data source (COM port or keyboard entry)
- Offset value to adjust your readings

Easy to Setup and Use – QC-Gage provides the tools and flexibility you need to easily manage data for virtually any type of part. During setup – which is accomplished through a Wizard – you can quickly construct a specification plan (Spec Plan) that includes a part diagram, customized instruction, and your own part and vendor identification details. During use, you can make measurements as prompted and you have the ability to re-inspect any values necessary.

Spec Plan Creation – Each spec plan you create is a complete definition of the part to be inspected and the process used to inspect the part. You can create as many spec plans as needed to support the variety of parts you inspect.
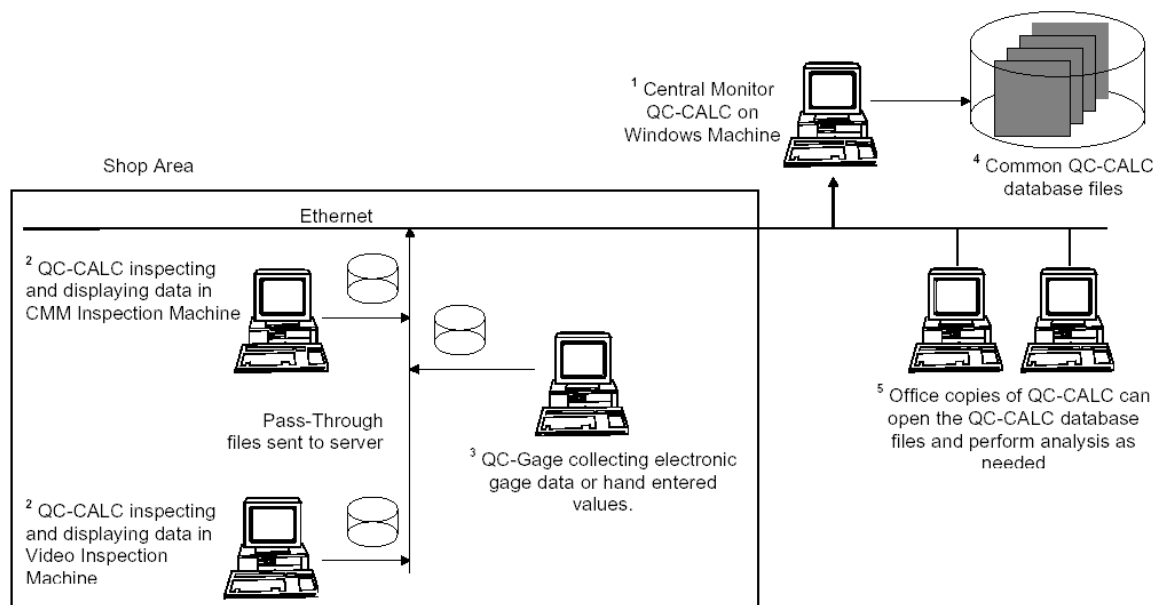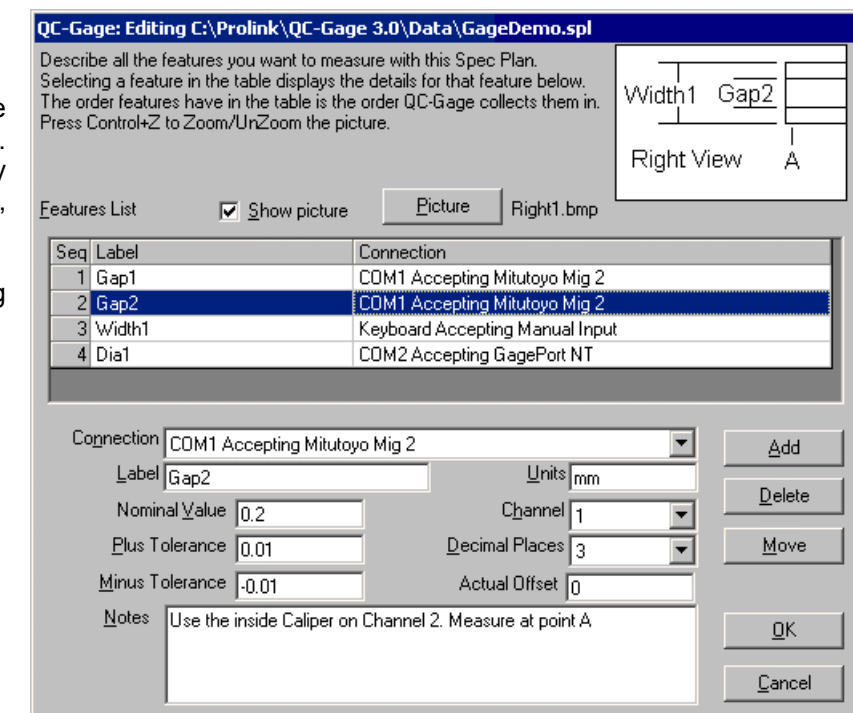
QC-Gage allows you to include the following for each spec plan you create:

- Your description of the part to be inspected
- The order of parts vs. features measured
- The number of parts to be inspected in a session
- Non-measurement data fields (such as Lot Number, Operator, etc.)
- A separate audit file to save inspection results
- Notes to tell the user what to inspect
- Definitions for each feature to be measured

Custom Report Generation & Output

QC-CALC's flexibility in data acquisition and charting carries through to its report generation and output capabilities. A complete WYSIWYG report designer lets you create and edit your own report templates to satisfy the most difficult reporting needs. For example, you can:

- Define the types and contents of the reports to be generated
- Generate reports with single or multiple graphs per page
- Print reports in color for presentation quality analysis and information
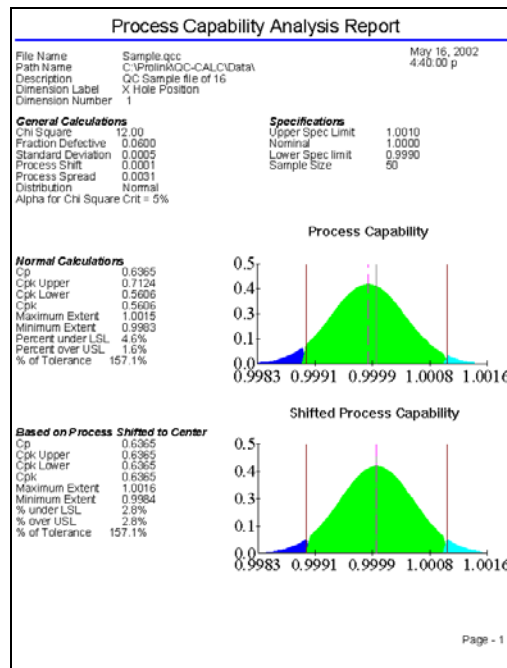
One Feature Per Page
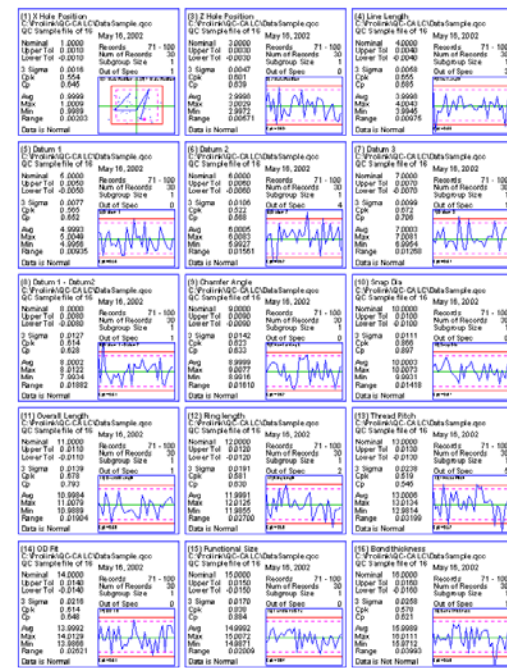
Multiple Graphs on a Single Page

Record Filtering

Filtering allows you to choose the data that is pertinent to your reporting needs and eliminate unwanted data. You can establish filters for the corporate business and shop levels. This makes it possible to standardize the filters company-wide in order to standardize all reports.

Filter Items:
- Actual Data Values
- Number of Fails
- Date & Time Values
- Factor Values
- Record Numbers

Date Filter Items:
- Today
- This Month
- This Year
- Yesterday
- Last Month
- Last Year
- This Week
- Last Week
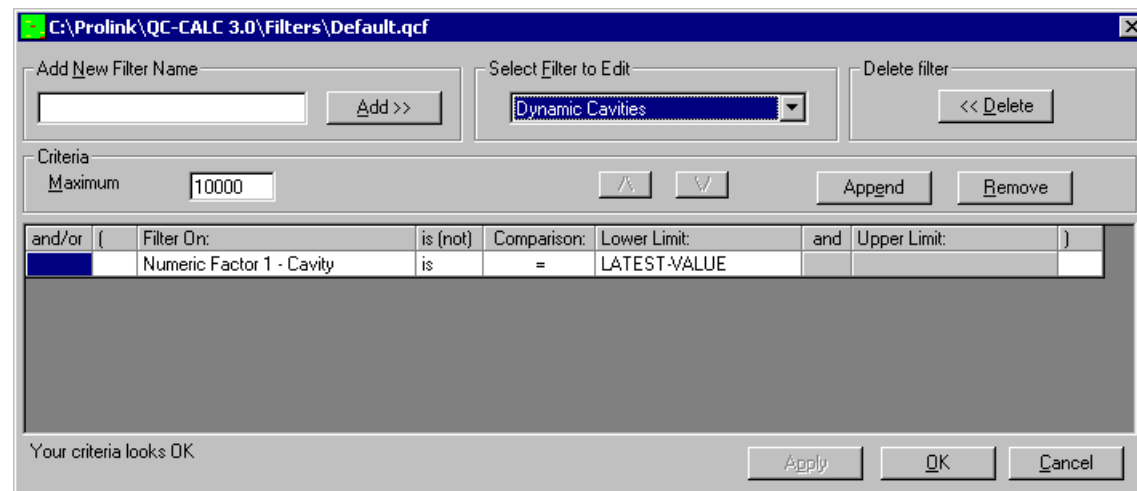
QC-CALC SPC – Historical SPC Analysis

What state is your process in? Is it in an ideal state or on the brink of chaos? QC-CALC SPC can help you answer these questions. This is a complete SPC package that analyzes the data QC-CALC Real-Time collects. Use QC-CALC SPC's charts and reports to constantly monitor your process to keep it in control.

QC-CALC SPC offers a wide variety of functions to aid your analysis. Clear graphics and informative screens give you the power to make on-the-spot decisions. QC-CALC SPC gives you a precise picture of how your productions line is performing with easy-to-use menus.
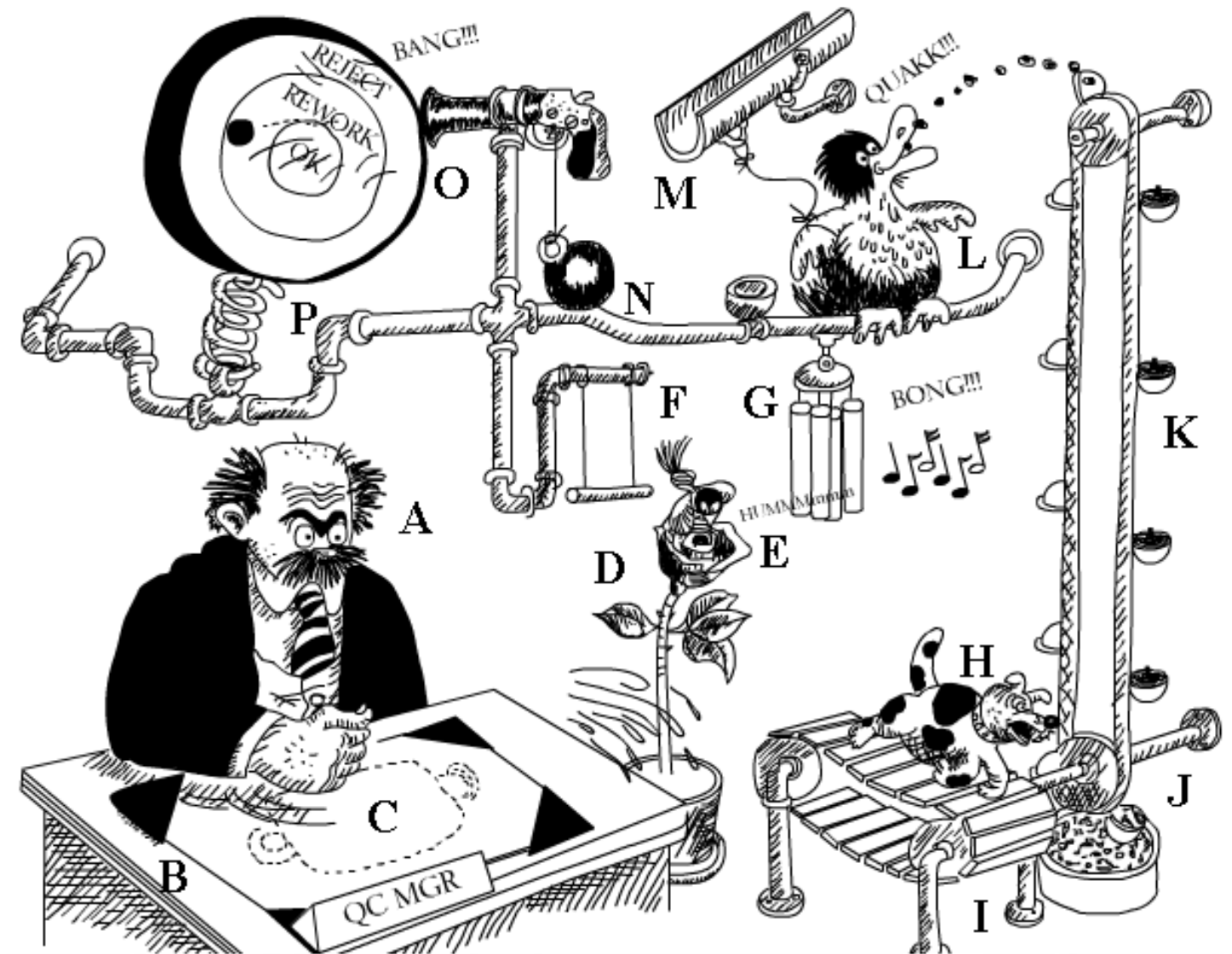
CAPTAIN OF INDUSTRY (A) POUNDS DESK TOP (B) FOR BETTER QC (CHIEF INSPECTOR HAS CONCEALED HOT WATER BOTTLE (C) UNDER DESK BLOTTER) PRESSURE OF FIST ON BLOTTER CAUSES WARM WATER TO SPRAY ON WILTED ROSE (D) WHICH BLOOMS – CAUSING HUMMING BIRD (E) TO HOP OFF PERCH (F) AND HOVER OVER BLOSSOM THUS FANNING WIND CHIMES (G) CAUSING THEM TO RING – WAKING SLEEPING DOG (H) WHO – THINKING IT'S THE DOORBELL RUNS TO SEE WHO'S THERE – THUS TURNING TREADMILL (I) WHICH CAUSES CUPS TO SCOOP UP SEEDS (J) AS BELT (K) BEGINS TO TURN – THROWING SEEDS TO HUNGRY DUCK (L) WHO FLAPS HIS WINGS FOR JOY CAUSING SHUTE (M) TO TIP DOWN ALLOWING CANNON BALL (N) TO FALL WHICH IN TURN PULLS STRING ATTACHED TO TRIGGER WHICH FIRES GUN (O) SHOOTING BULLET WHICH HITS MOVING TARGET (P) WHICH SENDS SIGNAL TO PRODUCTION LINE TO REJECT – REWORK – OR OK PRODUCT!

-Hal Rogers with a salute to Rube Goldberg

QC-CALC SPC

Grouping – If you've ever inspected parts using CMMs, Video CMMs, and hand gages, you understand the problems associated with creating a concise summary report from multiple data sources. Open multiple files at the same time to create a full report across inspection equipment. Using QC-CALC SPC, you can join and name a Group of files and create reports that include data from all these files. Each file is displayed in a grid or as plots similar to QC-CALC Real-Time.

Monitoring – Monitoring allows you to watch the data live on one computer as parts are being inspected using QC-CALC Real-Time on another. As your CMM runs, QC-CALC Real-Time is updating its live screens while QC-CALC SPC displays the same data in another location. This means you have the ability to see the condition of your inspected parts in real-time from your office or maybe at the machining center. You can monitor a single file, a Group of files, or the inspection machine itself. You can see the data in either live plots or in spreadsheet form.

Reporting Across Multiple Files – Using the reporting functionality in conjunction with the Grouping capabilities enables you to print one report displaying data from different files.

Control Charts

- Xbar & Range
- Xbar & Sigma
- Median & Range
- Individual & Range
- Indiv. & Moving Range
- Moving Avg. & Range
- Bivariate Analysis

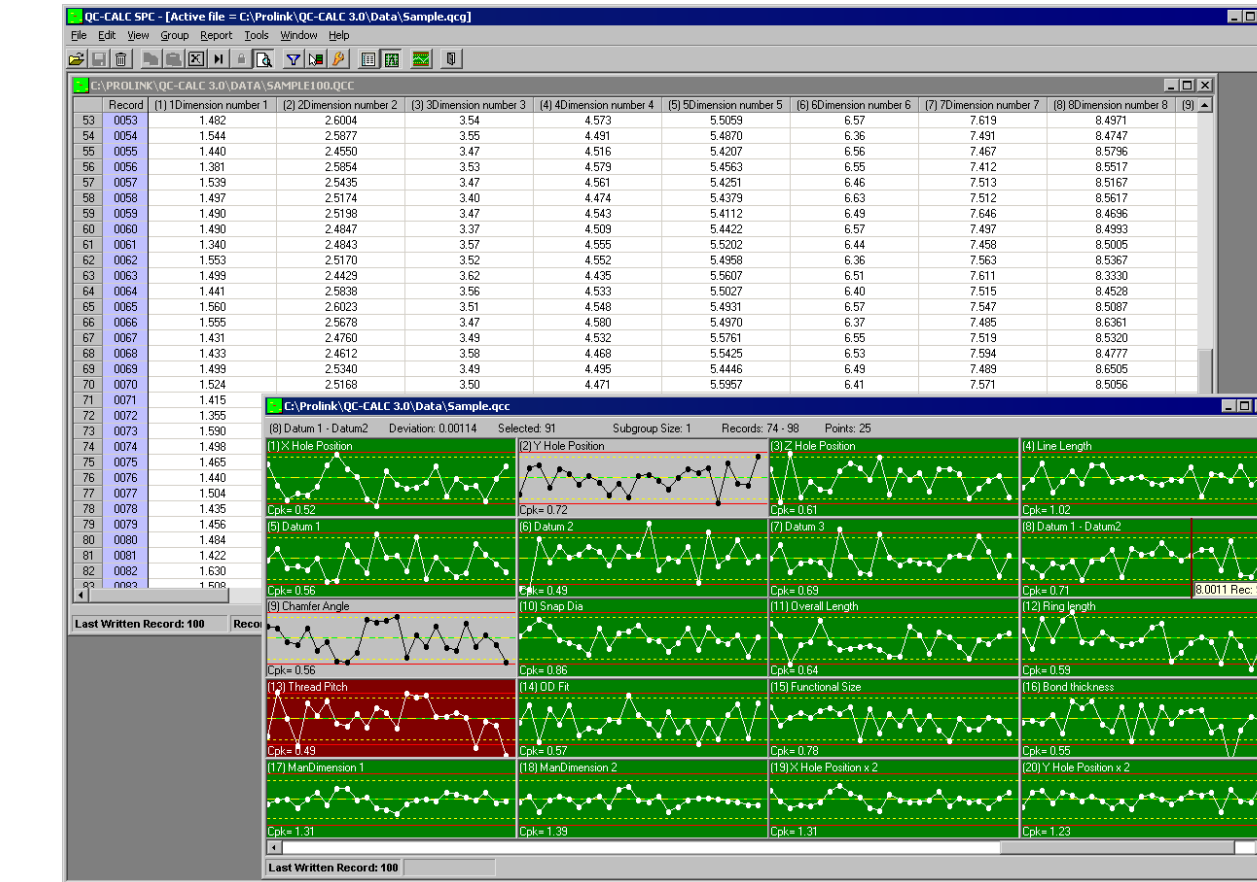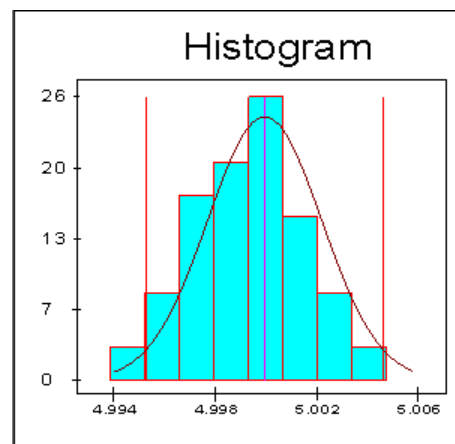XBar Control Chart

Range Control Chart
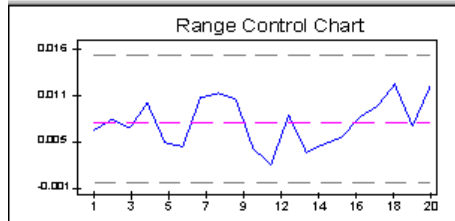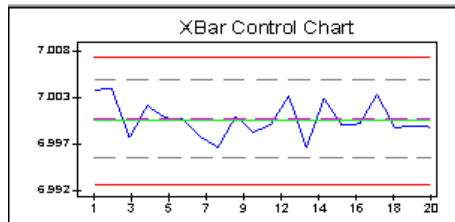
Process Charts

- Process Capability (Cpk)
- Histogram Analysis
- Probability Plots
- Pareto Analysis
- Correlation & Regression
- Raw Data w/ Outlier Detect

Attribute Charts

- C Chart
- Np Chart
- P Chart
- U Chart

Miscellaneous Reports

- Statistical Summary
- Raw Data
- First Article
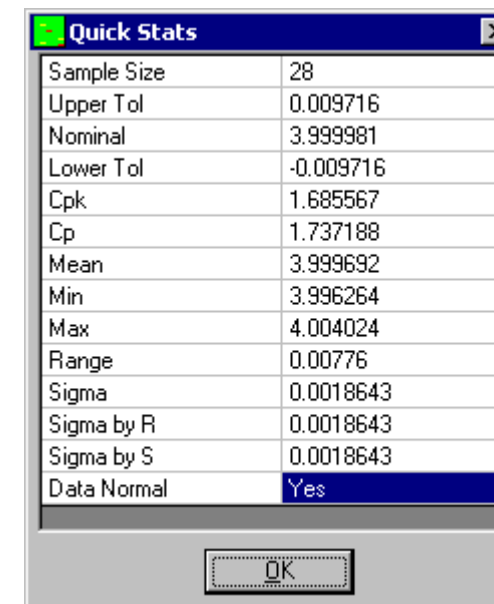- Non-Conformance
- Multi-Piece First Article

Histogram

Data Sorting – Sorting enables you to sort the data in an Edit Data screen into either ascending or descending order.

Password Protection – The flexible options that make QC-CALC SPC and QC-CALC Real-Time so easy to use can be password protected to eliminate accidental changes.
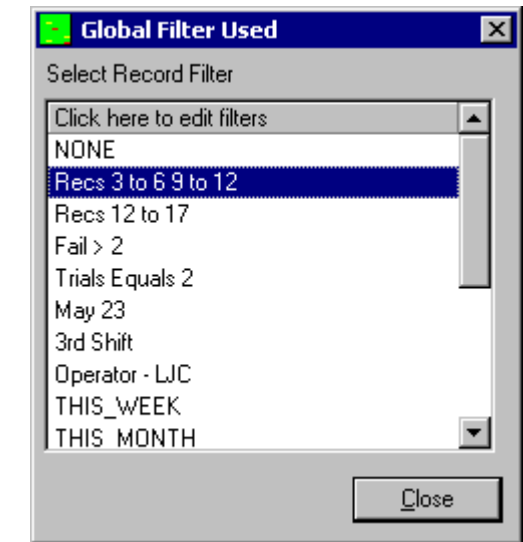
Language Support – Currently, QC-CALC SPC and QC-CALC Real-Time are configurable to English, French, German, Italian, Spanish, and Swedish

Process Capability
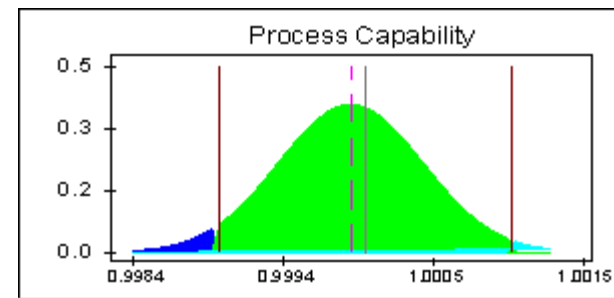
Quick Stats – This option enables you to view stats for a selected group of points in the active database file. Simply highlight the points you would like stats for and the pop-up screen will show the information.

Quick Stats	
Sample Size	28
Upper Tol	0.009716
Nominal	3.999981
Lower Tol	-0.009716
Cpk	1.685567
Cp	1.737188
Mean	3.999692
Min	3.996264
Max	4.004024
Range	0.00776
Sigma	0.0018643
Sigma by R	0.0018643
Sigma by S	0.0018643
Data Normal	Yes

Quick Switching for Record Filters – The Select Filter window can always stay on the screen enabling you to quickly switch between record filters you have created.

Global Filter Used — Select Record Filter
Click here to edit filters
NONE
Recs 3 to 6 9 to 12
Recs 12 to 17
Fail > 2
Trials Equals 2
May 23
3rd Shift
Operator - LJC
THIS_WEEK
THIS_MONTH

View Menu – QC-CALC SPC offers 3 different views depending on the level of user at the machine.

- Basic – Limits your abilities to only the bare necessities for data analysis.
- Advanced – Offers you full access to all functions of QC-CALC SPC.
- Custom – Allows your administrator to choose exactly which menus are right for their users.

Database Maintenance – All of the basic functions for cleaning out and combining databases are provided in QC-CALC SPC.

- Merge
- Purge
- Compact (Removes deleted records)
- Restructuring the database

Raw Data
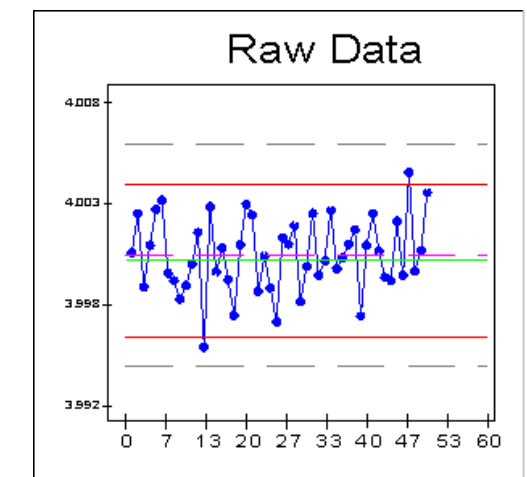
Gage R & R Wizard

Inspection data is useless without first proving the reliability of the measurement system on which it is collected. A Gage Repeatability and Reproducibility (GR&R) study doesn't have to be a painful process. With our new Gage R&R Wizard, we help you setup the study, guide you through it, warn you of potential problems, and help you analyze the results.
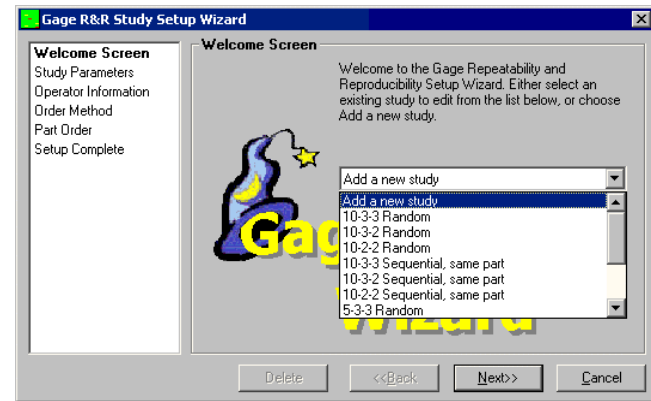
Setting up a GR&R study – Before beginning a Gage R&R Study, the Wizard will help you through a simple setup process. You have the ability to specify the following details in each study:

- Number of Parts, Trials and Operators in the study
- Operator Names
- Measurement Order of Parts and Operators
- Save the study to use later

Re-measure Part – If at any time during the study you need to re-measure a part and replace its value in the study, you can. Once the part has been re-measured, the study will continue as before.
.

Let QC-CALC Guide you through your study –

With QC-CALC's guidance, you never need to worry about all of the combinations of Part, Trial, and Operator numbers. The next part for you to measure will be clearly displayed at the bottom of the Real-Time screen, and QC-CALC will take care of the rest.

GR&R Estimate – No one wants to wait until the end of a study to find out how their gage is performing. Now QC-CALC provides you with an estimated GR&R Value that is updated throughout the study. This allows you to save time and money by stopping a study where one or more features are having a serious problem. The estimated Gage R&R value is printed in the graph of each feature.
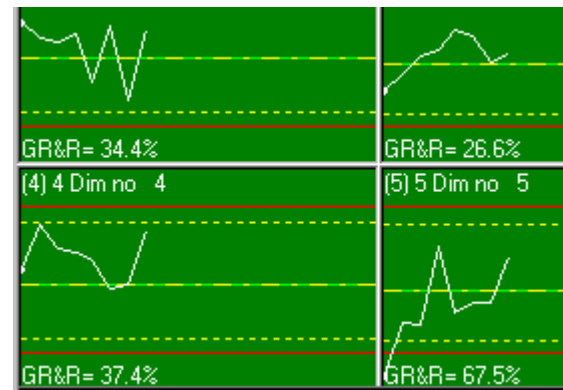
Analyze the Results – We include a concise report that allows you to quickly locate any features that are problem areas for the machine. You can flag any Gage R&R values that are over a certain percentage in red.
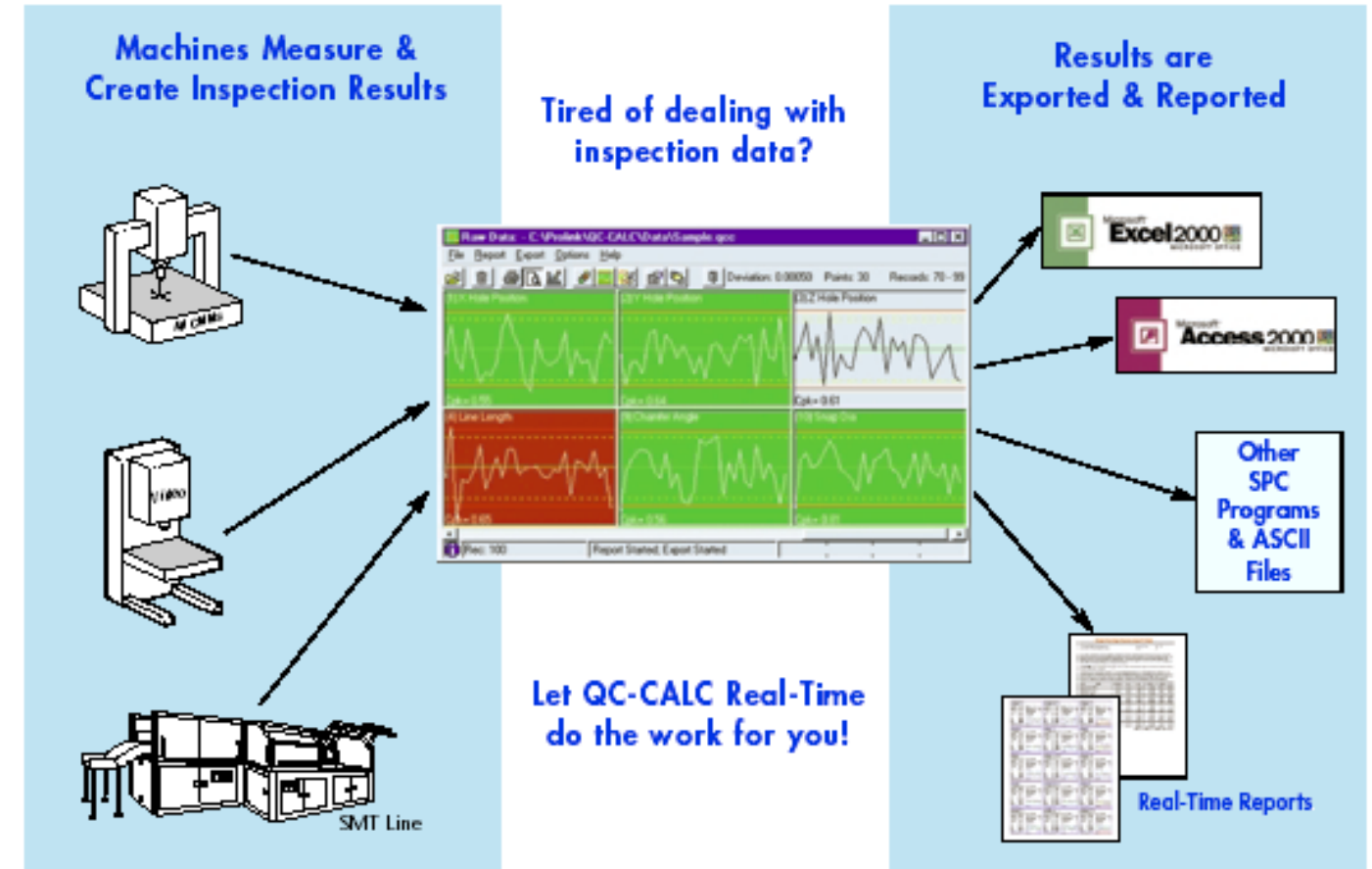
QC-CALC Real-Time – Data Collection

QC-CALC Real-Time is used to collect and display measurement results from all CMMs and Video CMMs without operator intervention. You can create reports and export the data to spreadsheets, databases, and other SPC Programs automatically. This means you can transfer data from all of your measurement machines to any SPC package using a single program!

This is the first software program to provide one interface for all machines and one interface for all outputs. Our goal is to make your data collection seamless no matter what equipment you purchase and no matter what SPC program your company uses as a standard.

QC-CALC Real-Time offers an advanced view of your process. Users can easily view a variety of graphs to quickly analyze a part or feature, or view all the features at once. From QC-CALC Real-Time you can:

- Quickly print reports
- Save data in other formats
- Perform many data analysis functions
- Continue to automatically collect data while performing these functions

QC-CALC Real-Time

Reporting – QC-CALC Real-Time Reporting allows you to print the following reports **manually**, or **automatically** without operator intervention:
- First Article – 1 Piece
- First Article – 5 Piece
- Stat Summary
- Raw Data
- Plot Report
- Single-Part Gage Report (P/T Ratio)
- Multi-Part Gage Report (P/T Ratio)

Report Formats – The Real-Time and SPC Reports can be printed to the following file formats:
- Adobe PDF
- Excel
- HTML
- XML (Extensible markup Language)
- EMF (Enhanced Metafile)
- MHTML (MIME HTML)
- RTF (Rich Text Format)
- JPG (JPEG File)
- BMP (Bitmap)
- TIF (TIFF)

E-mail Reports – **Manually** or **automatically** attach your reports to an e-mail message. This is useful when you want to be notified when your process goes out of control or tolerance.

Exporting – QC-CALC Real-Time Exporting allows you to export data **manually** or **automatically**, without operator intervention. The following formats are supported:
- Access
- Excel
- SQL Server
- Oracle
- ASCII Text File
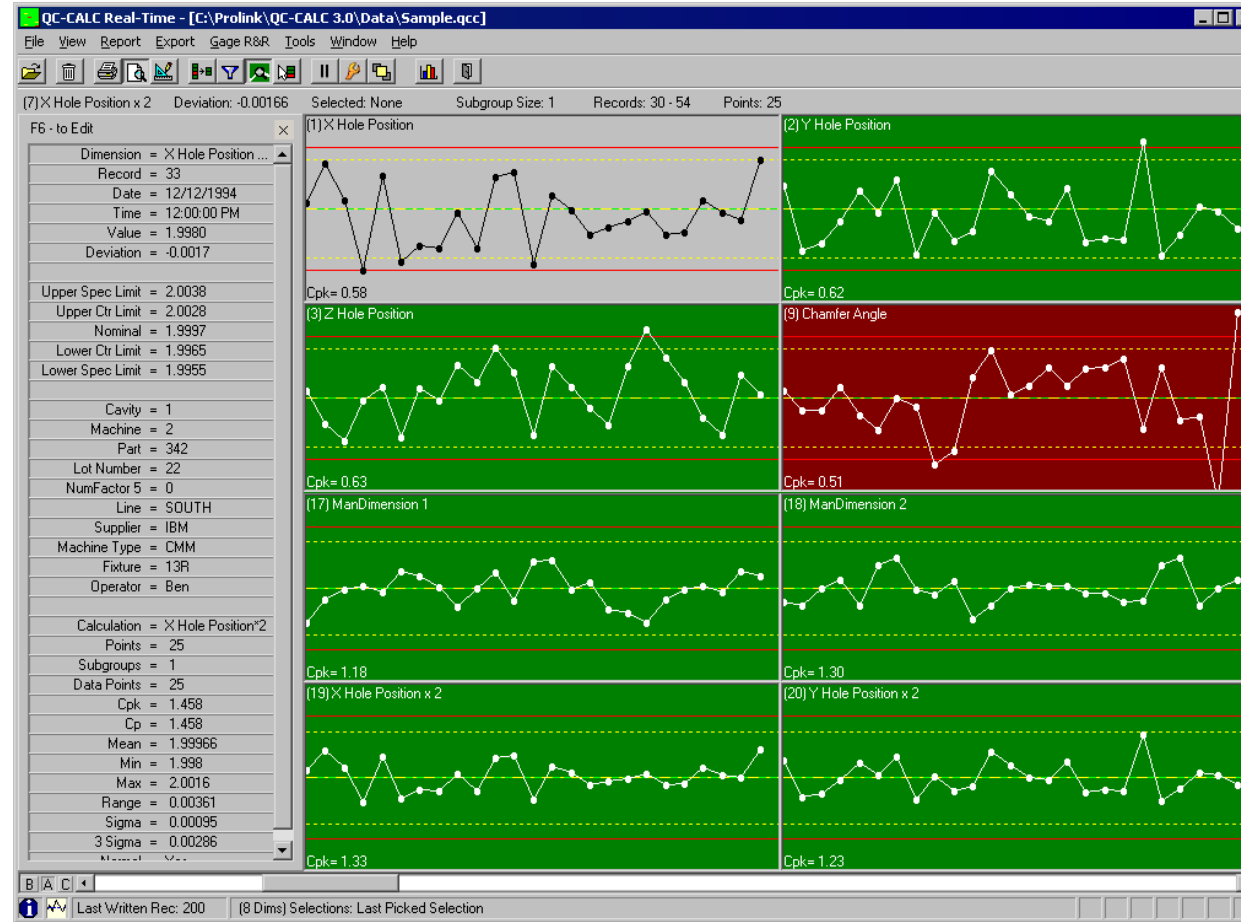- Q-DAS
- Visual SPC
- Minitab
- LightHouse
- DataPage

Record Filtering – Record filtering is now available in QC-CALC Real-Time, so you can show just the data you are interested in at the moment. A dynamic filter is also available to change the displayed values to show all matching values of the last value received for a certain criteria.

Dimension Filtering – You can now create and save different combinations of Dimensions to display and quickly choose between the different filters in order to see the critical features you care about.

Calculated Dimensions – You now have the ability to add dimensions to the database that are calculated based on other dimensions. You can convert from inches to millimeters by entering the calculation, or add in an offset.
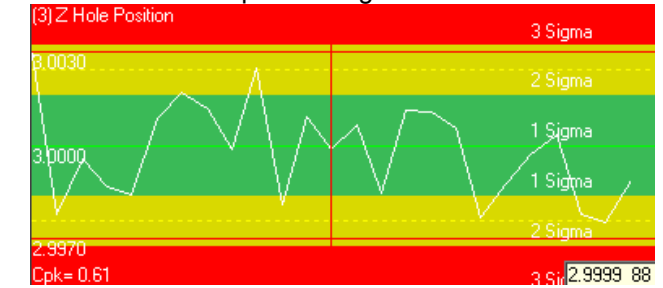
Manual Dimensions – The Manual dimensions give you the ability to enter measurements that do not come from the inspection machine. These values will be plotted like a regular dimension and will also appear in a grid at the bottom of the screen which doubles as the entry area.

Archiving – The Archiving feature **manually** or **automatically** copies any records that have not previously been archived to the archive folder. This creates another copy of the data in a different location for backup or archival purposes.

Affixed Windows – QC-CALC Real-Time's informational and data entry windows are now permanently affixed to a certain location to avoid the confusion of moving windows.

Assignable Cause – Assignable Causes and Corrective Actions are added by right-clicking the plots.

Trace Fields – Extra non-measurement data (we call Factors) can be automatically added from the Real-Time screen.

Pre-Control – Pre-control is a technique that is used to detect shifts or upsets in the process that may result in the production of nonconforming units. The three pre-control zones are set at fixed percentages of the Tolerance.

Range Charts – Range Charts are used to display the range of the points in each subgroup plotted over time. They are displayed directly underneath the Average Plots on the Real-Time Plots screen.
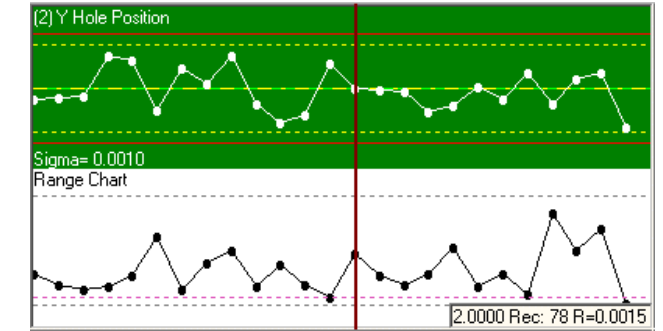
Sigma Lines on Plots – 1, 2, and 3 Sigma zones can be represented on the Plots by either lines or colored areas. Colored bands depict the Sigma zones.

Trend Analysis – Use any of the Trend Analysis tests below to monitor your process and have 1 or more actions trigger automatically (report, log file, assign Cause or Corrective Action, or display the trend on the plot):
- Drift Trend
- Stratification
- Mixtures
- Point Outside 3 Sigma
- Instability Tests
- Cp, Cpk Exceptions

Trends are depicted as thick lines superimposed ont eh plots as shown below.