



Quick & Accurate



NIST Traceable



Quality System Improvement



J.A. KING

PRECISION MEASUREMENT PROFESSIONALS



Fig 1. Positive Result: This is a ZZ-minus pin measuring 0.499980 inches. That is within the displayed tolerance (+0.0000/-0.0002) so the corresponding pin (0.5000 inches) is green, indicating that it passes.



Fig 2. Failed Result: This is a ZZ-minus pin measuring 0.500001. Since the upper tolerance is 0 inches, the closest corresponding pin has a diameter less than what was measured and is noted in red.

PIN GAUGE CLASSIFIER

WHY YOU NEED A PIN GAUGE CLASSIFIER: HAVE YOU EVER GRABBED THE WRONG PIN AND WOULD YOU EVEN KNOW IF YOU HAD? THAT COULD HAVE REAL REPERCUSSIONS IN MANUFACTURING INCLUDING: FAILING GOOD PRODUCT, PASSING BAD PRODUCT, AND PRODUCT RECALLS.

CASE STUDY: A medical device manufacturer that uses a library of class ZZ-minus pin gauges throughout their facility discovered that operators had selected the wrong pin gauge from the library during quality checks. Due to numerous operators and the large volume of pins, pins had been returned to the wrong storage slot after use. This resulted in failure of compliant product and out of tolerance product passing in-spection.

A Corrective And Preventative Action (CAPA) was initiated.

They needed operators to quickly identify the nominal diameter of the pin gauge and whether or not it was in tolerance. The device had to be integrated into workflows at two production lines with a database that could be updated in real-time.

J.A. King integrated Mitutoyo's Laser Scan Micrometer with a custom pin database. The system enables operators to measure pins quickly, and with high repeatability. With the press of a foot switch, the system sends measurement data to a PC via serial connection. Upon receipt, the software references the measurement against the nominal and corresponding tolerances and confirms whether the nominal is recognized and is within tolerance.

BENEFIT: By utilizing this system, operators have a quick and accurate method to confirm equipment specification before use, and a NIST traceable calibration event every time a pin is used. A Quality System Improvement.

UTILITY AND CONTROL

The database is user defined and updated in real-time; therefore as pins are added or removed from the inventory the database is updated across the facility. This reduces the risk of a process deviation and costly product recalls. The equipment also has the ability to restrict end user access so that line personnel can not adjust settings. Quality systems integrity is our goal.

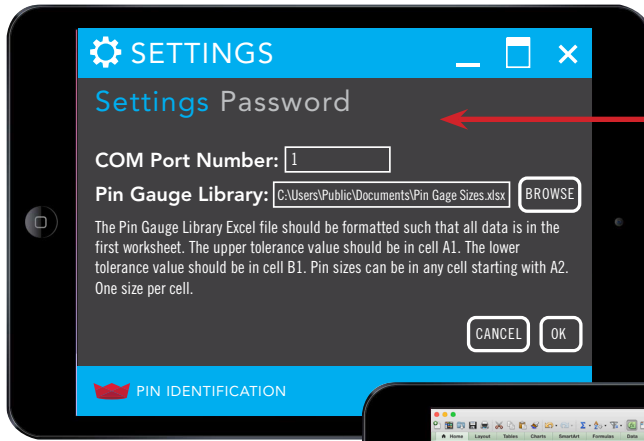


FIG 3. SETTINGS

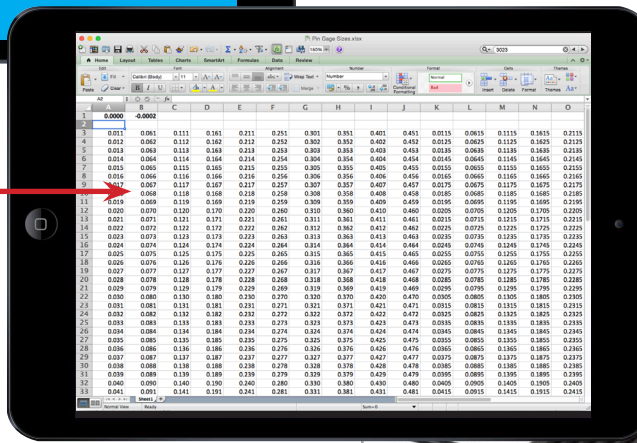
The Pin Gauge library is user definable. A custom Excel file can be created and edited as your list of pin gauges changes.

LIBRARY INTEGRITY

The system reports the total number of pins in the pin gauge library. This internal check allows end users to see that the correct library is in use. (See lower toolbar on Figures 1 & 2 reporting 720 total pins in the library.) Excel files can also be password protected and locked for editing. The library can be accessed via SQL server for access in a multiple station setup. Our software engineer can integrate the Pin Gauge Classifier with your specific system.

FIG 4. DATABASE

The Pin Gauge library (Excel file) contains the pin sizes and the upper and lower tolerances. (Note: at the bottom of Fig 1. & 2. that 730 pins are defined and reported as a database check.)



FULLY CUSTOMIZABLE

The Pin Gauge classifier is fully customizable. Our software engineer will work with you to integrate it into your existing system and customize the screen settings for optimal reporting.

THE REPORT WINDOW CAN BE MODIFIED FOR:

- Significant digits
- Color warnings for visible tolerance readout of nearest pin
- Tolerances being applied
- User id
- Time/date stamp

INTERACTIVE FEATURES FOR QUALITY SYSTEMS TRACKING:

- Badge scanning
- User ID
- Barcode scan of product under test
- Foot or hand switch options to suit workstation

DATA CAPTURE:

- Log data to a file
- Log data to local database
- Log data to customer specific data systems

VALIDATION SERVICES

J.A. King offers an IQ/OQ/PQ Package for your Quality Systems Documentation.



CALIBRATION

J.A. King can deliver your Pin Gauge Classifier with a calibration certificate and we can calibrate it for you at regular calibration intervals.

ENGINEERING & APPLICATION SPECIFICATIONS

The Pin Gauge Classifier can be used with the following Pin Sets: Class ZZ & Class Z. Customer has the option to provide their own computer for this system.

EXAMPLE SHOWN

Material being handled: Class ZZ-minus pin gauges
Part Size Range: $\varnothing 0.1 - \varnothing 25\text{mm}$
Scale Resolution : $\pm 0.5\mu\text{m}$