APPLICATION DATASHEET

Surface Roughness / Wrinkles

INSPECTION PROBLEM

Surface roughness, texture or wrinkles plays an important role in determining how a real object will interact with its environment. Rough surfaces usually wear more quickly and have higher friction coefficients than smooth surfaces. Wrinkles or texture may affect matchup of mating components. Similarly, roughness may promote adhesion and is desirable in some instances if controllable.

Roughness can be measured manually by a visual comparison vs. a known surface roughness or a physical inspection using touch, or a 'scribe' method. Data recording and repeatability between inspectors or shops are often challenges in this scenario.

REQUIREMENTS

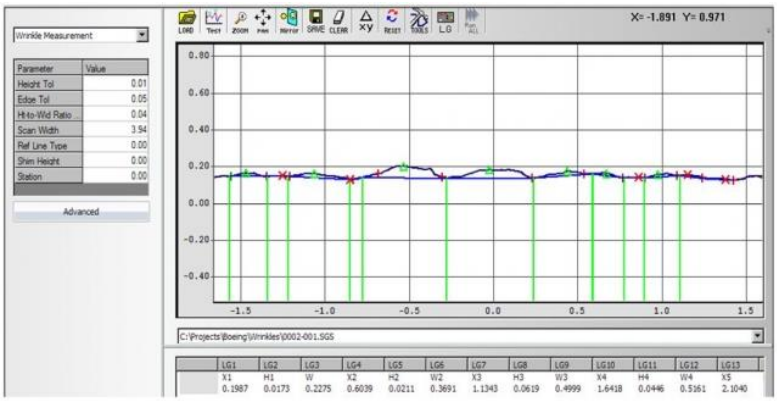
Measurements – The measurements must provide height and depth of the largest peak and valley, relative to a reference line.

Instrument – The measurement tool needs to have a high resolution. Measured values exceeding a predetermined upper limit need to be flagged visually and or audibly (most manufacturing methodologies are not concerned with a lower limit flag).

LASERGAUGE® SOLUTION

LASERGAUGE® SYSTEM

Depending on the amplitude and frequency of the texture, a TS800 sensor with either a 0.5" or a 1.0" field-of-view paired with an LG7000 controller is recommended. The TS800 can also be used with a Windows 10 based tablet or laptop running LGCommander. This USB sensor displays the profile in real-time on the LCD or computer screen so that the operator can make sure that the sensor is positioned correctly.



MEASUREMENTS

The algorithm automatically measures the height and width of wrinkles relative to a reference line. Returned values give the height of the wrinkle relative to the reference line, the width of the wrinkle and the starting location of the wrinkle, relative to the left endpoint of the scan. Measurements are automatic. The operator

positions the laser stripe over the feature of interest and releases the trigger. A reference line is calculated, and height and width values are extracted relative to it.

Each measurement takes less than a second to complete and to display the results in the data table on the controller or laptop. SPC or tolerance limits can be specified and any measurements that are outside the spec range are shown in red. The data table is automatically saved for documentation of the measurements taken.

ADVANTAGES REALIZED

Size – Due to the smaller, palm-sized TS800, hundreds of locations can be measured in hard to reach areas.

Data Collection & Storage – When the TS800 is paired with the LG7000 controller or Windows 10 based tablet or laptop, the data table and scanned profiles are stored directly on the controller or computer for review or archiving. No need to manually transfer.

Accurate & Repeatable – With sensor resolution in the thousandths of an inch, measurements are much more accurate than conventional methods.

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