Evaluate Special Effect Paint on the Assembly Line 60% Faster

The MA-5 QC multi-angle spectrophotometer, along with EFX QC software, improves color evaluation accuracy as well as tracks data for process improvement on assembled automotive parts.

Challenges

When working on a fast-moving assembly line, quality controllers must quickly verify color harmony between assembled parts. This process can introduce many challenges.

- Special effect paints and coatings change in appearance based on the type of light and angle of reflection.
- Paint defects, like incorrect color on the base coat application, can cost on average up to $500 per vehicle to fix.
- The quantifiable data from a color measurement device can verify and prove compliance, but existing instruments are heavy and quickly cause operator fatigue.
- With optics in the center, existing devices are difficult to align in tight intersections between zero gap automotive parts during the measurement.
- Wasted time equates to wasted money, so quality control must happen fast.
- Effectively manage and communicate color harmony across the supply chain.

Solution

Together, X-Rite's MA-5 QC multi-angle spectrophotometer and EFX QC software help quality controllers quickly evaluate metallic and special effect finishes on assembled automotive parts as they move down the line.

The MA-5 QC digitally communicates tolerances and measurement procedures with EFX QC software and collects, tracks, and reports color data to streamline approvals and identify areas for improvement. Built with quality control managers in mind, the solution can identify a paint defect early in the manufacturing process and avoid unnecessary repair costs.

This lightweight and compact instrument enables one handed operation and minimizes the fatigue associated with other multi-angle devices on the market. With optics on the tip, it is easy to align on shaped surfaces and tight intersections, while LED indicator lights ensure the instrument is correctly positioned on the sample.

The MA-5 QC includes a touch screen display with an intuitive interface for simple data input and analysis. It can be programmed for automated jobs to collect multiple data points and provides green and red pass/fail tolerance lights for fail-proof analysis. It is the first device on the market to help users identify whether the temperature of a sample is affecting color data with an on-screen temperature preview.

Results

The MA-5 QC and EFX QC software help quality controllers measure assembled automotive parts as they move down the line. Here's how:*

- 60% faster data collection at approximately 2.5 seconds per measurement.*
- 0.02 dE repeatability on white for consistent color data.
- Within 0.16 dE inter-instrument agreement when tested on 196 solid, metallic and pearlescent effect paints.
- 50% lighter at <22 ounces (615 grams).*
- 45% more compact.*

*Compared against X-Rite legacy and competitor devices with five or more measurement angles. Size based on external volume dimensions.

How it Works

1. Receive digital color data that describes both color and special effect appearance for the automobile.
2. Use the MA-5 QC to measure various sections of the assembled automobile and compare it with the specified digital data.
3. Using a pre-programmed process, the MA-5 QC guides the location for each measurement to collect multiple data points, and uses indicator lights to verify proper device alignment.
4. The MA-5 QC compares the measured data with the digital color specification and displays a green checkmark if the color is within tolerance or a red checkmark if not.
5. The connected EFX QC software tracks color measurement data to gauge quality and look for areas of improvement to increase profitability.

Achieve Color Success

The MA-5 QC multi-angle spectrophotometer with EFX QC software offers a fast, user-friendly, cost-effective solution to validate whether assembled automobile parts are within specification before final delivery.