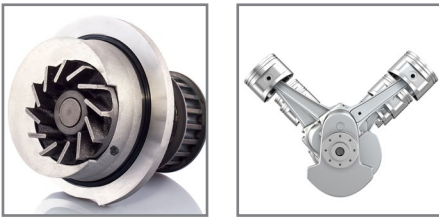Automotive

Automotive parts manufacturer minimizes rejects and rework by improving code quality

Automotive parts produced and sold to Original Equipment Manufacturers (OEMs) have special and complex coding requirements. Add the necessity to have clean, clear codes that allow for automated vision inspection in 24/7 hot productions environment where lubricants are used, and the bar for code quality is elevated even higher.

The challenge:

To secure and maintain the business of major automotive OEMs, automotive parts producers must adhere to strict part coding requirements. In accordance with their independent contracts with each OEM, parts producers place a mixture of symbols and numbers on each part for varying levels of identification throughout the production and distribution process. Adding to this complexity, code quality can be adversely affected by challenging manufacturing environments. Parts with missing, incorrectly formed or incomplete codes that fail to meet OEM requirements are rejected, causing costly consequences for the part producer.

Videojet advantage:

With smear-resistant inks and CleanFlow™ printhead technology, Videojet 1000 Line printers provide manufacturers with clean, consistent codes and maximized uptime. The CleanFlow™ self-cleaning feature helps to keep the nozzle free of debris between required cleaning intervals, thus reducing the frequency of printhead cleanings. Cleaner printheads mean cleaner codes and less scheduled downtime, and with Dynamic Calibration™, Videojet 1000 Line printers automatically adjust to variations in temperature or humidity, helping to keep printers running in tough production environments. Simplifying fluids replacement, the Smart Cartridge™ fluid delivery system means virtually no mess, no waste, and no mistake changeouts of ink and makeup. These features all help customers to minimize downtime and product rework.

One customer's experience

Codes are used by both the parts producer as well as the OEM to indicate, among other things, whether or not the product passed quality assurance (QA), unique OEM identifiers, appropriate placement of the part into the finished product, inspection numbers, a customer part number, production line identifiers and weight class data. Codes are also used by the producers to identify variations of the same part which are sold to different OEMs. Code quality for OEMs is paramount, and producers are held to tight constraints for their parts. Upon receiving, automated vision equipment is used by OEMs to validate and provide a 'pass' or 'fail' for each incoming part.

Videojet partnered with a large North American manufacturer of power train components and vehicle safety products to identify and integrate an ideal inkjet coding solution for their production, replacing older inkjet technology. The types of parts coded include engine bearings, pistons, piston pins, piston rings, cylinder liners, valve seats and guides, transmission products and connecting rods. Their production includes eight lines with multiple product changeovers per week producing varying parts for several different OEMs. The operation runs 24/7 with four shifts daily.

The main driver initiating the printer upgrade was the customer's experiencing of smeared codes due to heat extremes and lubricants used in the manufacturing of parts. They were also experiencing unscheduled downtime to frequently service their printers. The inability of their legacy printers to provide codes with good adhesion in these conditions caused poor quality codes. These inferior codes then caused rejection of otherwise acceptable parts upon automated inspection by their OEM customers. This rejection caused issues not only for their OEM customers who had strict specification requirements, but it also resulted in costly rework for the parts manufacturer. Any part not meeting the agreed upon specifications would have to have its complex part assembly torn down, stripped out and re-machined.

To address their code quality issue, this parts manufacturer selected and installed 17 Videojet 1620 Continuous Inkjet (CIJ) printers. Part of the Videojet 1000 Line of printers, the 1620s are specifically engineered for more demanding applications with 24/7 operations. Of great value to this manufacturer was the 1620's auto cleaning function. Using Videojet CleanFlow™ technology, the printhead is designed to reduce ink build up that can cause traditional inkjet printers to shut down. This unique printhead delivers clean, consistent codes, requires less cleaning and enables longer runs without intervention.

Prior to installation of new printers, this manufacturer would get partial and pixelated codes due to high temperature fluctuations and the presence of lubricants on the parts. Addressing their temperature concerns, patented Dynamic Calibration™ functionality automatically adjusts to changes in temperature and viscosity for consistent print quality in fluctuating environments. With integration of Videojet 1620 printers, high adhesion inks and revised quality control processes in place, this manufacturer reports a significant improvement in their code quality and their efficiency (with less unplanned downtime). And with clean, machine-readable codes, they have also significantly reduced their code-related rework of parts.

The bottom line

To meet OEM specifications, automotive parts producers must meet strict parts marking requirements. Achieving clean, consistent, machine-readable codes is a must, but is made more challenging with production environments that experience high temperature fluctuations. Parts with lubricants on them can also create issues with code adhesion. Avoiding coding related downtime and poor quality codes is especially paramount for 24/7 operations. Videojet 1000 Line printers feature patented technologies that provide automated cleaning, calibration and adjustment features for consistent printer performance with minimal operator intervention.

Offering optimal coding systems and inks, Videojet helped this automotive parts producer meet their challenging production needs.

Contact your sales representative today for an audit of your line.

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