Plymouth, MI – Many manufacturers put off changing their manufacturing equipment because it’s difficult to evaluate and especially difficult to justify the expense. Fluid dispensing system changes are commonly made to production when the product is in trouble. At this point the troubled dispensing machinery is usually robbing production of product quality, uptime, parts and maintenance, profits and sometimes customer orders.

The best time to seriously evaluate a change in the fluid dispensing process is when the customer and manufacturing personnel want one or more of the following: Higher Part Quality, More Part Variety, Lower Part Cost, Lower Scrap, Reduced Spare Parts, Reduced Maintenance, Reduced Labor per Part, or More Jobs per Hour. Each of these desires can be addressed with a specific level of fluid dispensing and automation technology. When the fluid dispensing process is moved higher on the application technology scale the part production results are improved. Delaying change keeps costs high and invites loss of business. The equation is simple: Change equals change.

Production upgrade opportunities include changing from manual to semi-automatic dispensing or upgrading from semi-automatic to fixtured robotic dispensing. Manual dispensing includes cartridge guns and manual fluid valves applying fluids. Semi-automatic includes operator-controlled fluid metering machines. Robotic dispensing systems include manual-load part fixtures and automation transferred parts. Upgrading dispensing technology normally increases capital cost but lowers production and part cost.

Evaluating ROI

Evaluate the return on investment of new dispensing equipment for your process. Determine the savings per part and per year considering the costs of your current process equipment vs. your new process equipment. It’s amazing how much you can save and improve production by exploring new choices in each cost factor. The ideal payback on new dispensing systems is six to twelve months.

Just as it’s important to define how many different parts can be handled by an operator in a manual dispense application it’s important to define how many different parts should be processed by a automation applied fluid dispensing system. For example, when upgrading to a fixtured-part robotic dispensing system, evaluate how many different parts needing fluid dispensed can be handled by one fixture, how many different fluids are needed per part and how many can be combined. Fixtures can be designed to hold multiple parts where each unique part can utilize its own fluid dispense program. In some cases two different fluids can be dispensed onto the same part by the same robot to significantly improve process efficiency and cost.
Solving The Problem

In one case, after evaluation, the manufacturer selected manual-load robot automation dispensing for potting and gasketing electronic modules. They needed to increase part quality and jobs per hour. Each part had three fluid applications using two different materials. Three robot automation fixtures were engineered and each fixture had its own dispensing system from a common supply. The company bought a small 6-axis robot and the dispensing equipment supplier engineered robot automation fixture, integrated the entire system and programmed the robot bead paths. This manual-load robot automation design provided the highest precision fluid volume and bead path while meeting the production rate with the lowest cost per part.

Another manufacturer wanted an electronic module and a metal cover applied in two separate alternating steps with the same adhesive. They wanted to upgrade from manually applying adhesives, increase the production rate and have the electronic module adhesive applied with consistent precision to reduce scrap and warranty costs. The company selected the dispensing equipment supplier to turnkey engineer the entire system including the robot, the manual dual-load single dispense station fixture, meter-mix dispense system, integration, tooling and bead-path programming. This design significantly reduced the overall cost by bonding two parts quickly with one robot automation system.

A third manufacturer wanted to upgrade from manual to semi-automatic dispensing for an electric coil potting operation. The company wanted low cost, yet precise, volume filling and had more than a dozen different size components. The parts are batch processed and individually potted. The process required a precise fluid flow rate to ensure no voids occur in the coil to lower scrap cost and warranty issues. The design included a positive displacement meter-mix dispense system and an electrically controlled and integrated rotary turntable fixture. The operator loads the tooling for the part, loads the coil assembly on the tooling and foot-pedal starts the meter-mix dispense process. The turntable rotates to the correct speed and the dispensing system applies the selected volume in the part. The table stops and the part is unloaded. This semi-automatic design uses nozzle position, precise flow rate, rotational force of the part and machine controlled fluid volume to ensure quality potting of the coil and reduce product failures.

The next step: Define your dispensing issues and production process requirements. Contact an experienced dispensing equipment supplier who can provide expert engineering, manual-load robot automation fixtures, system integration and robot bead path programming. Ask for advice and get started now to improve your production dispensing process.