

Incremental improvements For your adhesives process

FASTENERS AND ADHESIVES

INCREASING PRODUCTIVITY IS OFTEN ABOUT SMALL CHANGES – SLIGHTLY INCREASING YIELD, DECREASING WASTE, REDUCING MATERIALS USED OR IMPROVING QUALITY. IT IS NOT ALWAYS ABOUT INCREASES IN OUTPUT, OR ABOUT OVERHAULING AN ENTIRE LINE TO ACHIEVE IT. HERE KEVIN COOK, TECHNICAL MANAGER AT ADHESIVES SPECIALIST INTERTRONICS, EXPLAINS HOW TAKING AN INCREMENTAL APPROACH TO IMPROVING AN ADHESIVES PROCESS ADDS UP.

If you are looking to improve your adhesives process, the first step is understanding the process in detail to establish the specific goal you would like to achieve. You can then identify areas of improvement and devise ways to meet the objectives. By identifying the main pain or pressure points, be it quality, repeatability or bottlenecks, you can plan a step-by-step approach that gets you where you want to be.

It does not have to be a revolution; rather than a huge step change and a large up-front investment, you can purchase a preliminary technology that gets you part of the way. Improving a process without a massive departure from the processes already being used is not only more manageable for production operators, but may also be much easier to justify from a return on investment (ROI) perspective.

One common pain point we work with our customers on is repeatability. It could be regarding dispensing volume, where we might recommend a dispense controller/valve, in dispense path, where we may recommend a robot, or in fixing the distance from the lamp in a UV curing process. Manufacturers often look to remove redundant steps in their process, which can be realised by purchasing material in a larger container to prevent an additional decanting stage, or adding equipment that enables them to dispense directly from the pot they already have.

If cure time is too long and work in progress is high, manufacturers can consider whether there is potential for a UV curing material or a Born2Bond cyanoacrylate adhesive, which cure quickly and therefore reduce work in progress and production times. Efficiency is a common reason for altering a dispensing process; manufacturers are looking for ways to do more with less.

Dispensing is a complex field, but the answer might be as simple as using a time/pressure dispensing machine – what's important is that you trust your supplier to teach you about the technology and materials, share all the available options with you and recommend the best course of action for your business.

By working with your adhesives and dispensing equipment supplier on a step-by-step incremental plan,

you can also add to your equipment in the future with little to no redundancy. Regular contact provides additional touchpoints to review your process, as often once you change one thing, by adding more equipment and increasing efficiency, it exposes other areas of the process you can improve. For example, speeding up the curing process with a UV or Born2Bond adhesive may overwhelm the next step in the process; a step by step approach means you can identify and explore opportunities as they arise.

Improving dispensing accuracy

Consider this example. A manufacturer is manually dispensing a cyanoacrylate adhesive and would like to improve accuracy. The first step might be to introduce a dispense controller, such as a time/pressure dispenser and a dispensing valve. This would replace the manual process of metering by eye, reduce the potential for repetitive strain injury and improve accuracy and repeatability.

If the manufacturer wanted to improve this further, it could then opt for a pressure pot. Purchasing material in a larger container can offer a cost advantage compared with purchasing a small bottle, as well as a time saving as the operator will no longer have to regularly change the syringe.

To achieve high levels of accuracy and repeatability, the manufacturer could integrate this set up onto a robot. The skilled operator can then be relocated to another area of the production line or the business that adds more value. Depending on the objective, the steps could be completed in a different order — automation isn't always the end game.

An alternative example comes from the preflow range and Dymax UV curing lamps. These ranges have a breadth of modular options to meet your current and future needs, without necessarily purchasing a full system straight away. For example, you could start with just a lamp, before



adding a shutter and/or a light shield. There is no obligation to purchase everything all in one go.

The Archytas series of robotic integrations is a great example of how manufacturers can benefit from the incremental approach using automation. We take appropriate surface treatment, dispensing and curing equipment, with a suitable robot, and combine them into a safe working cell designed around the customer's individual requirements. The systems are designed and built in such a way that they can be easily adapted, enabling additional or alternative equipment and capabilities to be added in future. For example, you could add sensors or cameras to assess part location.

One customer we worked with recently was attaching up to 500 ABS plastic widgets to stainless-steel sheets. This labour-intensive process involved several different sizes and layouts. The first step was to automate the cyanoacrylate adhesive dispensing using a single dispensing valve and a robot. The customer then asked if we could speed up the process, so we added two further valves and the required robot hardware. However, this relied on having the right programs for each jig/configuration. Rather than working with 100 programs, we suggested adding sensors that detect which configuration is present, so that the correct valve is triggered.

Intertronics takes the time to understand every customer's process in detail, so we can recommend the equipment and materials to help you achieve your goals. Our approach is to only sell you what you need, taking small steps until you are happy with your process. We can also carry out trials in our Technology Centre in Kidlington, to demonstrate how our proposed solution could work on your line.

MORE INFORMATION: www.intertronics.co.uk