

Applying Pressure-Sensitive Items on Roll-Fed Beverage Labels

A PowerForward Case Study

In 2017 PowerForward Inc. was approached by a major beverage company to assist with a large campaign planned for the summer of 2018. The specifics of this project are confidential, but how we used and adapted our technology may be helpful to others in the consumer-packaged goods and print industries.

What the Beverage Company Wanted

The company was looking for a way to add new interactive or decorative features to the wrappers on their plastic bottles.

Could our PowerStick applicator place pressure-sensitive (PS) items on top of (or under) their base web before their labels were added to the beverage bottles? The company had already tried other brand-name applicators that did not meet their needs.

To achieve the desired results, one or more high-speed applicators would be integrated into the client's slitter-rewinder line that runs at 1000 feet per minute.

In addition, downstream in the bottling process, the resulting decorative labels plus attached items would still need to be applied correctly to 20 oz plastic bottles. Adding to the challenge, placement tolerances were very tight within the target area on the client's base label, and obviously no labels could be missed.

These requirements were well within our capabilities because we specialize in precision application of items onto webs at high speeds.

PowerStick — Accuracy at High Speed

Even before inventing our continuous-transfer technology for labeling (U.S. patent 8,453,700) 13 years ago, our other systems for card issuing and booklet label manufacturing ran in line with high-speed print and label equipment. So we had experience with the demands speed makes on mechanical, electrical and software components. (If your product lines run at *blur* speed, you know what I mean.) Even a whisker of variation in accuracy accumulates to cause spoiled products in a few minutes.

In 2003, when we discovered that even tiny rounding errors in commercial controllers were affecting accuracy, we developed our own proprietary motion controller to correct the problem.

When our first PowerStick client asked us to design a very fast applicator in 2005, we started from scratch using the principles we had learned from our other products, rather than the common stop-start methods that use triggers to initiate label application. Like all of our products, the PowerStick runs in synch with the client's base web, automatically adjusting its speed and application position as necessary.



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Redesigning PowerStick for Higher Volumes

Our standard PowerStick applicator met the client's speed requirements. However, their base labels were printed multi-up, 6 across the base web, and using 6 standard applicators would not be practical in terms of space and material handling. A new multi-applicator design was needed to apply PS items onto the client's multi-up base web.

Our standard applicator applies one PS item at a time. The new PowerStick Multi-applicator would need to apply 6 items simultaneously across the web. Though the label transfer process would remain the same, the multi-applicator would need to be much wider to handle a material web with 6 labels across.

Our primary concern was mechanical. The transfer slide plate and the frame plus the rollers and turn bars that handle the web, all would be much larger. Would our usual industrial-grade aluminum construction be structurally sound and stable enough during continual high speed operation?

Though not initially specified, we added a waste rewind component so operations staff could readily remove the release liner waste that would

be accumulating at the rate of a mile of waste for every 25 minutes of run time.

We completed our multi-applicator design in two months, and built the prototype machine by mid-2017. Our in-house testing demonstrated that it was possible to feed rolls of PS items at speeds over 2,000 labels x 6 (or 12,000) per minute. [Watch a PowerStick test run](#) to see the multi-applicator in action at 220v 1Ph and 7 amps.

Testing & Running the New Multi-Applicator in Production

The final testing occurred in the client's production environment to ensure we had accommodated every detail of the operating environment that could affect accuracy. We were also concerned about potential downstream impacts on the bottling line, and learned that bottle labeling operation proved to be sensitive to the location of the new label added to the film base label.

The PowerStick multi-applicator went into full production in March 2018, affixing labels at 360,000 per hour. Even considering roll change times (base web, label supply, finished product), daily production with two shifts was 4 million labels.

Why You Might Want to Learn More

As you can imagine, PowerStick technology works for many other high-speed web applications. A long list of high-volume consumer products: gum packages, lottery tickets, snack foods, baby wipes, femcare products, beverage wraps, coffee cups, paper bags, re-sealing food closures, yogurt lids, tooth paste packaging and more. Plus print products like magazines, catalogues and newspapers.

At high volumes, PowerStick pays for itself in a few days. Plus it fits into your production process without slowing it down.

As you know, the label industry manufactures an amazing array of innovative PS products—for decoration, information and consumer interaction. Just add your ideas and you have a formula for delighting your customers, differentiating your products or eliminating costly, slow processes.

Visit our [website](#) to learn more about PowerStick. Contact us by [e-mail](#) or phone 416-227-0002 to discuss how PowerStick might work for you. And when you're ready to look at numbers, we'll send you a customized Cost-Benefit Worksheet.