



Application note



Print & Apply labeling

Improve efficiency: switch from tamp or blow applicators to Direct Apply™ labeling



Over the past 20 years, print and apply labeling (LPA) technology has remained somewhat unchanged. Despite attempts by many suppliers to improve the performance of LPA machines, in particular the common maintenance and downtime issues, one critical mechanical element has remained the same – the applicator.

The Challenge:

With no other alternative solutions on the market, manufacturers learned to accept the near constant maintenance required from labeling equipment and the resulting end-of-line inefficiency that comes with it. The mechanical applicators that conventional LPA machines use to apply printed labels to packs rely on the accurate and timely placement of the label from the print engine onto an applicator pad. This entire mechanical process is often a significant contributor to conventional LPA failure and consequential downtime. To help prevent the unwanted downtime, multiple adjustments are often required to set-up such applicators. These constant adjustments take operators away from their productive tasks and onto labor-intensive maintenance work.

Videojet advantage:

The Videojet 9550 print and apply labeler with Intelligent Motion™ technology has revolutionized the packaging industry by providing a solution that avoids these applicator issues altogether. The 9550 does this by removing the need for an applicator and simply printing and feeding the label directly onto the passing pack. Videojet calls this Direct Apply™ technology.

This application note discusses the simple steps involved for a user to switch from using a conventional tamp or blow print and apply applicator to the 9550 with Direct Apply™ labeling technology.

Switching from tamp or blow for side apply



The first consideration is to review the existing presentation of the packs on the production line.



Pack handling for conventional applicators

Most end-of-line packaging equipment, whether shrink wrap tunnel or case erector/sealer, feed packs out along the center-line of the conveyors that take the packs onward to auto or manual palletizing stations.

However, all forms of LPA benefit from having the packs guided from the center-line across to the side of the conveyor where the LPA is located.

In the case of blow applicators, this guidance is essential to present the side wall of the pack as close as possible to the blow applicator, to maximize the chance of reliable label application (labels are not aerodynamic).

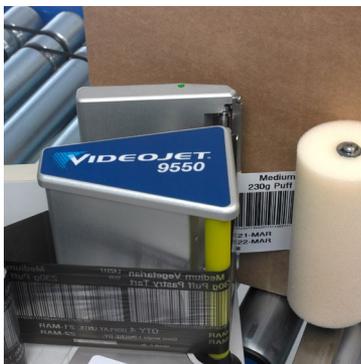
In the case of telescopic tamp applicators, guiding packs close to the LPA results in the tamp applicator utilizing a minimum telescopic stroke length, which in turn helps maximize the throughput capability of the LPA, and reduces its vulnerability to damage. For example, a miss-timed tamp applicator stroke can result in a collision with an advancing pack, which can bend or otherwise damage the applicator.

However, some users might have chosen to utilize the variable stroke capability of a tamp applicator to accommodate their different pack sizes, from batch to batch, that may run down the center-line of the conveyors.



Pack Handling for Videojet Direct Apply™ technology

Direct Apply™ labeling means simultaneously printing and wiping a label onto the side of a passing pack. To achieve this, packs must be guided from the conveyor center-line to the side rail adjacent to the LPA machine.



In many situations, the packs will already be guided from the center-line to the side of the conveyor, and in these situations, no additional pack handling is required in order to switch from tamp or blow to Direct Apply labeling.

In situations where packs currently run along the center-line of the conveyor, the Videojet Pack Handling Kit provides two simple adjustable guide rails to install just prior to the LPA in order to guide the packs across to the side rail of the conveyor, ready for Direct Apply labeling.

NOTE: If the packs are running on the center-line of a belt conveyor, rather than roller conveyor, then it may be necessary to replace the relevant section of belt conveyor with the Videojet Stand with Integral Conveyor, which also includes the Videojet pack handling kit.

Speed and throughput



The first consideration is to review the existing presentation of the packs on the production line.

Speed and throughput considerations

Conventional LPA machines need to utilize applicators to apply printed labels to packs, because the LPA print engines cannot print at typical production line speeds.

Therefore, conventional LPA relies on significant gaps between packs to provide the time to print a label onto some form of suction pad, often a compressed air vacuum pad, from where it is subsequently either blown or tamped onto a passing pack. This can lead to risk and cost, because these LPA machines are often configured to print the next label as soon as the previous one has been applied. At the end of a production batch, this can lead to a label sitting on a vacuum pad, consuming large amounts of factory air for a long period, and unless it is manually removed prior to the next batch, the first pack risks being mislabeled.

It can be appreciated that production line throughput, or output, is the critical issue, and that conveyor line speed – linear speed – is merely a means to that end.

The linear speed of the conveyors running from the outfeed of a shrink tunnel or case erector/sealer is often set to not only deliver the throughput required, but also to create the pack spacing necessary to facilitate conventional LPA bar code labelers or onward conveying and palletizing systems.

Conveyor speeds up to 30 meters per minute

The majority of end of line conveyors run at linear speeds less than 30 m/min (500 mm/sec). In these circumstances, there are no further considerations necessary in order to switch to Direct Apply™ labeling, because the 9550 can print at linear speeds from 40 mm/sec up to 500 mm/sec, and within this linear speed range, the 9550 can deliver any required throughput, irrespective of label size.

Overcome the challenge of build-back and increase throughput with Direct Apply™ labeling.



Conveyor speeds beyond 30 meters per minute

On certain production lines, the conveyor linear speeds may be set higher than 30 m/min (500 mm/sec) in order to create or maintain a large gap between packs while still delivering the required throughput.

The secondary packaging end of the production line most often comprises multiple conveyor sections of three meters or less, each section being driven by its own motor. Typically, these will be either fixed speed AC Motor (w/gearbox), or Variable Speed AC Motor (w/inverter), or Variable DC Motor (w/controller).

To switch to Direct Apply labeling in these situations, the 9550 needs to be positioned adjacent to one of these sections of conveyor and the linear speed of that one conveyor needs to be reduced below 30 m/min (500 mm/sec).

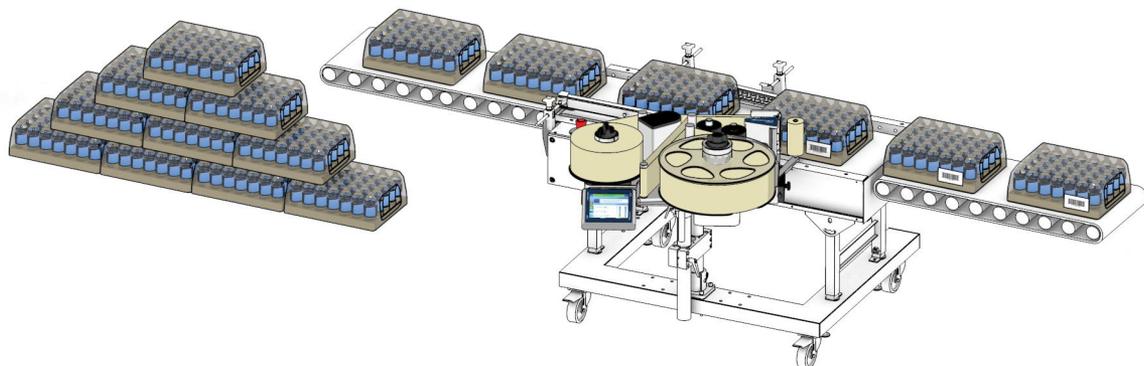
As packs enter this slower section of conveyor, they will bunch closer together, however, unlike conventional LPA systems, the 9550 does not require any (2-5 mm) material gap between packs in order to print and apply at any required throughput. This means that this conveyor section

can run at a slower linear speed while retaining the same high production throughput, so users can gain the reliability and uptime benefits of Direct Apply labeling technology, without compromising productivity.

If pack spacing further down the line is important, then the 9550 can be located adjacent to any section of conveyor except the last section, so that packs get re-spaced as they move onto subsequent sections of conveyor.

It is straightforward to adjust the speed of the one section of conveyor in order to enjoy the benefits of 9550 Direct Apply labeling.

Finally, some lines have very long conveyors with one motor, which might not have the power to drive the weight of more packs if the nature of the product is relatively heavy, so that slowing that conveyor down to 500 mm/sec for Direct Apply labeling is not an option. In these circumstances, it may be beneficial to incorporate a short length of 500mm/sec conveyor, in order to fully take advantage of the reliability benefits of Direct Apply labeling.



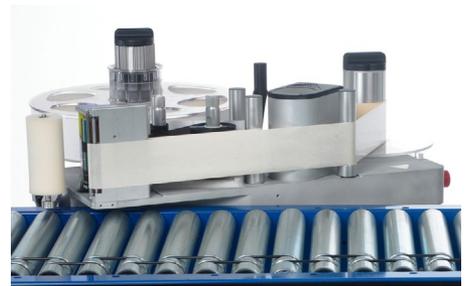
Switching from tamp or blow for top application

There are no specific pack handling or speed/throughput considerations when switching from tamp or blow applicators for top apply applications. The existing line configuration is suitable for 9550 Direct Apply™ labeling.

Pack height considerations

If the various pack sizes that run on a particular production line vary in height, then it is essential that the 9550 is mounted on a variable height stand. The user may then simply wind the machine to the appropriate height for each production batch run.

Note: In applications where pack heights vary within a batch, as may be found in on-line fulfillment warehouses, 9550 Direct Apply labeling is not applicable and 9550 with 300T tamp applicator module should be used.



The Bottom Line

The 9550 removes the 5 most common reasons for downtime:

- 1. Label jams**
- 2. Web jams**
- 3. Ribbon jams**
- 4. Mechanical failures**
- 5. Mechanical adjustments**

Contact Videojet today to find out more about the benefits of Direct Apply technology.

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