



POLYONICS
宝力昂尼

POLYONICS Applicator Workbook.

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POLYONICS

PRINTER APPLICATOR WORKBOOK

How many labels a minute did you say you needed?

DON'T BE MISLED.....

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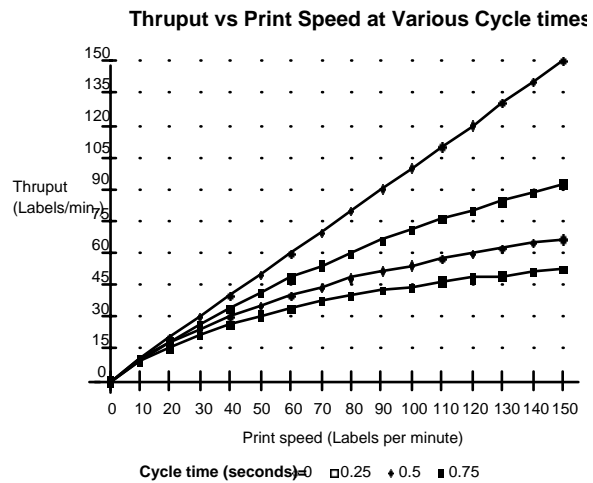
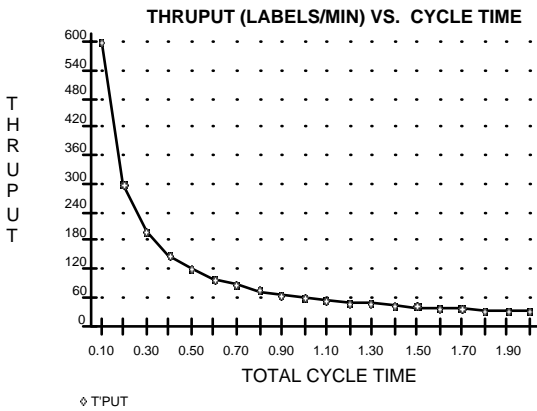


PRINTER SPEED IS ONLY ONE FACTOR IN MEASURING ACTUAL THROUGHPUT OF PRINTER APPLICATOR SYSTEMS !!

“How fast can I print and apply labels to my products ?” is perhaps the most commonly asked question in specifying a printer applicator system. A complete print apply cycle is comprised of transmitting the data to be printed to the printer, printing it, while simultaneously moving the product to be labelled into the labelling zone, signalling the system that the product is present, and, finally applying the label. The system is then ready for the next cycle. As cycle time increases, thruput decreases exponentially

$$\text{Throughput (Labels/min)} = 60(\text{sec/min}) / \text{Cycle Time (sec/label)}$$

The sequence of events in a complete print apply cycle are serial, i.e. each one must be completed before the next one can begin. Thus the throughput of a system is inversely proportional to the cycle time, i.e. the longer the cycle time the slower the thruput.



Conversely, if the cycle time is known one can specify the printer speed required to accomplish a required thruput. The second chart depicts the printing speed requirements and resultant thruputs at various cycle times. The throughput for ANY print speed and ANY cycle time can be precisely calculated:

$$\text{Throughput (Labels/minute)} = \frac{\text{Print rate (Labels/minute)}}{1 + (\text{Apply time (sec/label)} / \text{Print time (sec/label)})}$$

WAYS TO INCREASE THROUGHPUT

In addition to using any one of several other high speed POLYONICS applicators, you can increase your throughput by paying attention to one or more factors. Larger labels print more slowly than **smaller labels**. Random information, or several fields of serialized information, print more slowly than **fixed information**. The **closer the product** is to the labelling head the faster the system. Slower printers are less desirable than **faster printers** if all other elements of the system are at maximum throughput. Random product size variation is typically labelled more slowly than **batches of constant product size**. **Faster conveyors** under some circumstances are critical to throughput than slower ones. **Shorter spacing between products** can increase throughput compared to longer spacings. And, **electronic drive applicator systems** are faster than air cylinder ones.

The complete cycle time(seconds per label) of any printer applicator is composed of the time required for four discrete events to occur: **Process time** (label formatting), **Print time** (time required to physically print the label), **Label transport time** (time required to get from print head to applicator head), and **Apply time** (time required to apply label and begin the next

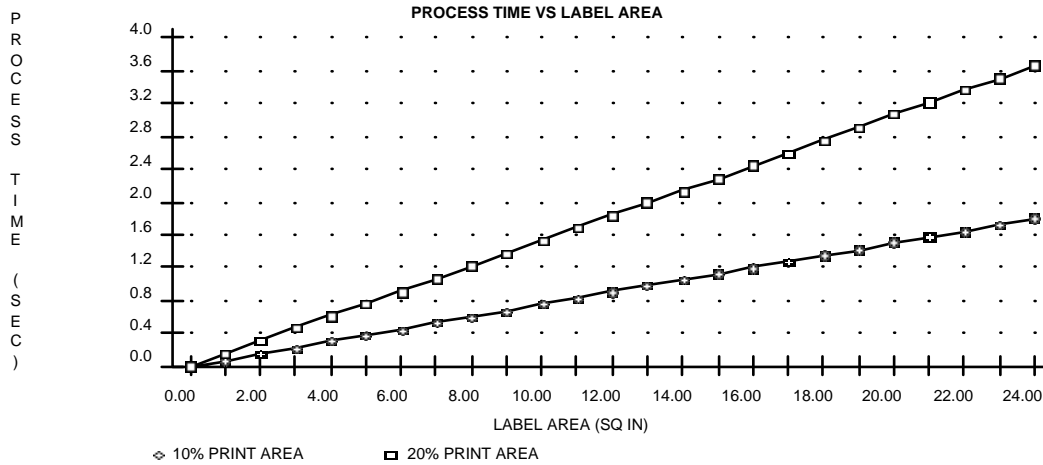


cycle). In practical terms, the transport time approaches zero, since the label usually feeds onto the head as the label is printed. There may be exceptions !!

Cycle Time (sec)= Process Time(sec) + Print Time(sec) + Transport Time (sec)+ Apply time (sec)

One can increase throughput by increasing the speed of each event, or by trying to force events to occur in parallel with others (multiple events occurring simultaneously).

Figure 1.



Print time is a printer dependent variable which depends on the label length and the rated print speed of the printer. **YOU SHOULD ALWAYS PHYSICALLY MEASURE THE ACTUAL PRINT TIME REQUIRED FOR YOUR LABEL !**

Figure 2.

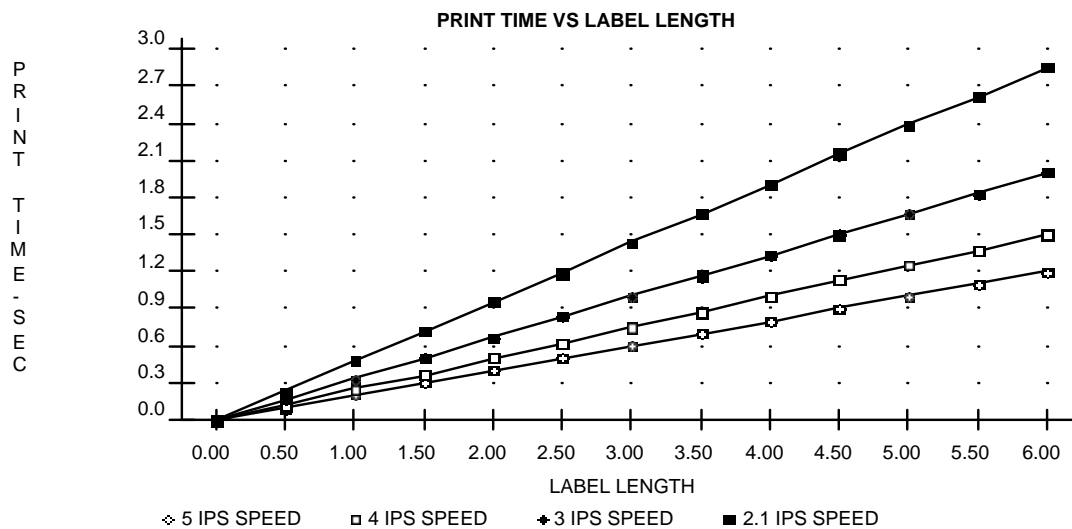
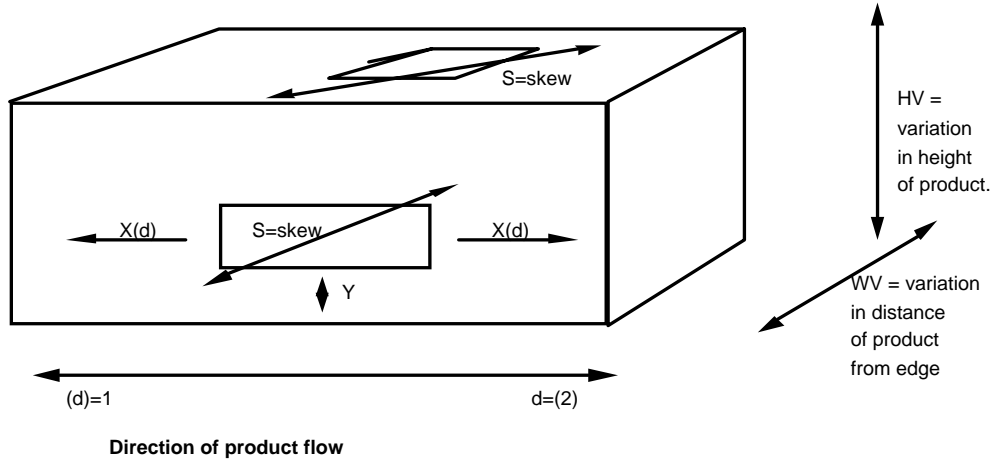


Figure 3.

variation all influence how the label will be positioned when it ends up on your products. This placement is critical if you are using fixed station scanners as part of a sortation system. If the label is too skewed, the scanner may not be able to capture the entire label, causing a “no scan” condition. If you require a label to be placed in a specific “window” on your product, the accuracy of placement is also a function of all the variables listed above.

Completing the checklist below is essential to achieving the most accurate label placement possible.

INFORMATION NEEDED FOR PRODUCT MOVEMENT AND LABEL PLACEMENT





YOU MUST ANSWER ALL THE FOLLOWING QUESTIONS !

1. PRODUCT FLOW

- A. Direction of product flow (d)=1, OR (d)=2 ? _____
- B. Product throughput (pieces/minute) Average: _____ Maximum _____
- C. Conveyor line speed (feet/minute) _____ Tolerance (+/- fpm) _____

- 2. Distance to leading edge X(d) ? _____
Tolerance (+/- inches)? _____

- 3. Distance from bottom of product (Y) ? _____
Tolerance (+/- inches)? _____

- 4. Skew Tolerance (S) (+/- inches)? _____

NOTE: A MUST FOR APPLYING TO TOPS OF PRODUCTS:

- 5. Height of product (H) ? _____

Variation in height (HV) ? : (min.) _____ (max.) _____
 BATCH _____ RANDOM _____

- 6. Width of product (W) ? _____

- 7. Variation in distance from edge of product to applicator head (WV)? : (min.) _____ (max.) _____

- 8. Weight of product ? _____ lbs.

- 9. If the product is a box, what are specs. for "deformed boxes" ?
(Please attach).

- 10. If the product is not a box, you must include drawings or samples of products to be labeled.

If you have questions please contact us at info@polyonics.com.