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Leveraging Your Assets

Considerations for shifting to high-mix without retooling an entire line.

To paraphrase an old saying, “Nothing’s certain in a production environment except that technology requirements will change, and productivity must improve 10 to 20% annually, regardless of economic conditions.” Since the 2001-02 meltdown, companies are wrestling with how much financial exposure they are willing to assume, knowing economic conditions will soften (they always do). And production demands and environments are evolving, shifting from high-volume to high-mix. Such was the struggle recently for one of our customers.

Originally, the customer’s production environment demanded dedicated product builds in high volume, and its gear set was optimized for this. The line was composed of multiple pieces of two vendors’ pick-and-place machines. With these machines still on the books for a period of time, the transition to a higher product changeover environment coupled with new technology on upcoming products created various line bottlenecks. The line would need to be reconfigured. Significant downtime was experienced whenever a product build exceeded 80% of a given shift, because retooling the line would occur during a shift change. This caused reverification of the line inputs, transfer of production changeover information between shift staffs, and in general extended the changeover to over two times longer than it should normally take.

These situations always have a variety of factors that must be taken into account before decisions can be made:

1. Due to its financial obligation for the machines still within their depreciation periods coupled with concern over fluctuating market indicators, the customer was not in a position to completely retool the line.
2. A means to either reduce the number of changeovers or make them more efficient when required could significantly boost output.
3. Increasing line output would help ensure that any production builds could occur in 80% of a shift, but

increasing line length was not an option. Therefore, the focus turned to exchanging a single machine, but which one to replace?

4. All equipment has its strengths and weaknesses. Focus on understanding how these strengths and weaknesses can be complemented. In this particular case, significant feeder capacity was consumed by duplicating high-running components. This was because the high-volume equipment already in place was now being used in a higher-mix environment.

Problem Solved

There is more than one way to skin the proverbial cat. Some problems can be resolved via a small investment, rather than retooling an entire line. In this case, a single piece of gear enabled the customer to recapture approximately 15% of the previously consumed feeder capacity. Loading more products on the line with a common feeder setup reduced the number of changeovers. (Moreover, while it is often argued that line volume is not as relevant in higher mix environments because changeover time becomes more of a factor, in some cases both can be achieved with minimal investment by leveraging existing gear and without extending the line length.)

Manufacturing is about tradeoffs. Inserting a new machine could change a line from single to mixed vendor. If the decision is made to add a vendor, the need for line-level software that can accommodate multiple vendors must be considered. When new equipment is selected, can any of the previous equipment’s hardware, such as feeders, be leveraged? In addition, repositioning or replacement of a machine (as was required in this case) must be justified. ■

When inserting new equipment, can existing hardware be leveraged?

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