

Horizontal Thermoform Fill and Seal: Calculating the Real Costs

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If you've been seeking to enhance your existing automated operations and have previously rejected converting to horizontal thermoform fill and seal (HTFS) machinery, it just might be time to rethink that decision.

Compared to other styles of packaging machines, the immediate benefits of HTFS machinery—more output plus less time and decreased manpower—are obvious. The long-term gain of decreased per-package costs (encompassing material and production-cost savings) also are appreciable.

Specifically, HTFS is faster than horizontal flow wrap and more versatile than vertical-packaging machinery. And, while each application possesses its own specifics, in general there is a packaging-cost savings ranging from 30%-70% when switching to HTFS.

Even better, servo-driven HTFS machines edge out their pneumatic counterparts. When a machine's primary functions are pneumatically driven, the compressed-air requirement is high, ranging from 20 cubic feet per minute for a small machine to 80 cubic feet per minute for a larger, higher-speed one. Servo-driven versions, however, typically consume 80% less compressed air per cycle.

Yet some company leaders still believe the technology is out of reach price-wise—until they weigh the true costs of doing business as-is.

Many people limit their financial outlook and consider only the HTFS machine and material cost, and don't see how much their current setup costs in terms of:

- utilities (electric, air and water consumption);
- wasted film;
- compromised efficiencies (speeds related to utility consumption);
- packaging-material costs;
- factory floor space;
- output potential;
- maintenance (requires skilled personnel or repair contract with the manufacturer);
- wear and tear (light built vs. rugged built in terms of press sizes and capacity); and
- depreciation and resale value (considerations include fixed web width versus adjustable and capacity capabilities).

So, consider more than the cost of a new machine or limiting packaging material. Be especially cautious about purchasing "tinker toy"-type machines versus their hardier cousins. Many companies sell low-grade machines and rely on aftermarket sales to survive. These wear-and-tear costs aren't always considered by purchasers and might not be revealed by a vendor. The result: a significantly inaccurate assessment of a machine's costs over the long haul. A 4-ton press and 2-ton machine may perform comparably at first, but the 2-ton will wear out much faster

than its sturdier competition.

In addition, a machine should be viewed in terms of its versatility: Can it handle numerous sizes and package types or is it a one-trick pony? In terms of packaging material, consider the design of package dimensions as well as machine hardware to potentially reduce the starting gauge of plastic.

Kicking the tires

Company leaders should expect a vendor to provide answers to the above criteria and even more when thinking about purchasing HTFS machinery.

A keen review of current packaging needs is essential—in terms of marketability and functionality—and whether those parameters can be altered. A vendor should make a potential client aware of not only a machine's capabilities, but also what it cannot do. Answering whether the obstacles being encountered can be solved with automated equipment is as vital as performing an accounting of current volume versus expected future growth.

Estimates should be calculated on the capital required to integrate automatic equipment. Company leaders should do some homework on what cost savings are needed to justify a change. Sometimes, the packaging-material cost savings alone will generate enough savings to cost-justify a system within 18 months. For example, a company making 4 million packs per year might be paying \$0.25 per package. For every nickel in material savings, there is a \$200,000 annual savings for material alone. It might surprise many manufacturers that a 30%-50% material reduction is real and possible by converting to HTFS.

A good machine vendor also will bring in some film vendors and provide company leaders with accurate quotes on material costs associated with a particular HTFS machine. This will aid everyone in determining if a significant cost savings-to-output ratio exists versus a company's current operation method. Of course, the vendor needs to operate within a customer's ROI/payback time period. This will impact the price range of the machine they will be able to afford.

Once those factors are considered and calculations performed, you should expect a vendor to quote the proper system and provide a machine's detailed description. Also don't forget to consider post-purchase training requirements. It's preferable that training occur within North America to avoid the costs of overseas travel as repeated training trips might be needed to bring employees up to speed on obtaining the best from an HTFS machine. In addition, a company should expect a HTFS machinery vendor to be agreeable to, and capable of, performing machinery modifications once lines are functional.

One size doesn't fit all

Naturally, HTFS machines will not prove the savior of all businesses, and a reputable vendor will let a company know if that's the case. Operations that might not benefit from this technology include: low-volume manufacturers (who probably will find the cost-to-benefit ratio hard to justify) and higher-volume companies with a multitude of packaging varieties (the tooling costs and changeovers likely would prove cost-prohibitive). Still, if a company is outputting

a small volume, say 4 million packages annually, a 30%-50% packaging savings is possible.

In the latter example, sizes sometimes can be consolidated to heighten the efficiency of utilizing HTFS machinery. A third group that might not gain a boost from the technology is “just in time” manufacturers that assemble kits as they package materials since HTFS machines tend to run continuously and fairly rapidly.

For those who find that HTFS machinery is the way to go, parameters can be established to ensure lines are running at peak efficiency. Generally, an operational qualification is performed to determine whether a quality package can be achieved within a certain range of temperatures, dwell, pressure, and vacuum levels, if applicable. The machine is then set at a nominal between these ranges. The HTFS control system is capable of monitoring these process numbers, and alerts the operator to an out-of-range condition, or shuts the machine down with error messages. An audit trail also can be recorded to monitor shutdowns and slowdowns due to these errors.

HTFS machine enhancements that are now in demand include improved ergonomics, sanitizing ease, quick changeovers, user-friendly integration of state-of-the-art vision systems and sophisticated printing hardware.

If internal efficiencies and their respective cost-savings benefits weren't enough, marketplace pressures now exist that might influence a company to pursue a changeover to HTFS technology. Consumers are applying convenience-oriented and eco-driven pressures, primarily represented by larger retail stores.

For example, the club stores are telling poultry manufacturers that the tray-over-wrap package is falling out of favor and the HTFS package style is more in demand. Several of the larger companies supplying club stores are now involved with this technology. Also, shelf space is at a premium, so a HTFS package is more desirable than a pouch that might waste space, but be more efficient for the manufacturer.

When you consider the “true” internal costs and the premium the marketplace is placing on green-friendliness, HTFS machinery could be the ideal solution for your situation.

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