

Wash Aisle Innovation

Advanced Soil Counting—New Systems Simplify, Enhance Accountability

New software/hardware makes it easier to count soil with speed and precision

By Scott D. McMillan

Why Count?

To count or not to count ... your linen is your inventory—and your money. Each pick-up at a customer's site is an opportunity to recover your inventory for productive use. Would you set a bag of money on the table and guess how much was in it? What if your guess was wrong? If your inventory is sitting on a customer's shelf, how can you make money with it? If inventory is tied up on the route or over supplied to one or more customers, it can't be rented elsewhere. This results in a costly cash drain for the operator, who must purchase more inventory to compensate.

For a textile rental operation that is not currently counting, how does it know how much inventory is truly supplied to each customer? If the company's usage level is set at 100 weekly pieces, are there 100 on the shelf? Or 500? In today's workplace, many route drivers are simply delivery people, trying to serve customers well. But in their exuberance, they often will oversupply customers to keep them happy rather than manage the inventory level. Has the salesperson or account rep ever visited to check the supply level of the customer? Likely not. From the service perspective, the rental supplier wants a happy customer and may feel it is more important to avoid shortages than to worry about counts. But in the long run, the rental supplier may be over renting and significantly under charging the account.

What about losses and abuse? Will the customer automatically do all he can to reduce theft and hoarding? Probably not. What about those automatic replacement charges—you may be under or over charging each customer. Perhaps your competitors will undercut you by not charging this fee, or effectively charge less by charging losses at the actual rate—which, if measured, will likely decrease as the customer recognizes the benefit of reducing them by their own effort.

Today's textiles are more durable and long lasting than ever. However, replacement costs are rising as well. When a dozen napkins cost \$2.50, who cared about loss and abuse? Today, at \$9 or more for a quality spun-poly napkin it's a new game. And what about those high-value goods like tabletops and specialty items?

Now, more than ever, inventory management is the way to control merchandise costs. The only way to improve is to measure, and the only sure-fire way to measure inventory is to count soiled linens after arriving at the plant.

Methods of counting—old way/new way

Many textile operators view soil counting the "old way"—that is, highly labor intensive, often error-prone and difficult to manage. In the old way, soil items were painstakingly separated and counted into small piles on a worktable. The laborer would have to keep track in her head of the item count and remember to write this number down on a slip of paper—noting the account, day, item, etc. Often the counts would be lost part way through the process. The paper tickets were easily lost and mixed up. Finally, a manager would have to hand carry the tickets—or a large pile of tickets—to the office. Some lucky office clerk would have the unpopular task of handling these soiled, sticky, stinky wads of paper and 10-key them into the route-accounting system—

sometimes taking the better part of an entire work shift. CSR/RSRs were not exactly confident in their peer's work, which did nothing to present accountability to the customers.

No wonder so many operators long ago abandoned the whole effort. Many simply said, "We tried that. We don't count, period."

Enter the "new way"

Today there is a better way to get accurate counts. There are no more handwritten tickets. There is no endless ten-keying of numbers. There is a faster and more efficient process of separating the items. The automated and computerized system gives the RSR/CSR the confidence to project accountability to the customer.

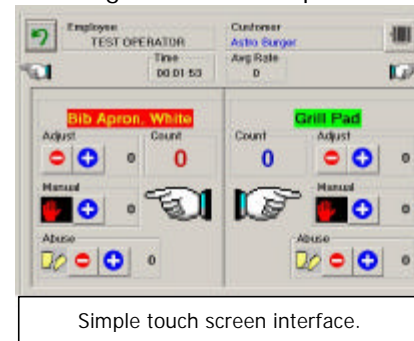
The new software enables the leap in automation. At the counting stations in the plant, a touch screen interface provides the productivity leap.

Depending on methods and operator motivation, productivity can be between 1,500 and 2,400 pieces per operator hour counted—sustained rate, where hand counting is typically maximized at less than 1,000 pieces per operator hour. The touch screen interface is multi-lingual and incorporates large buttons and simple graphics, along with large display and color-coded schemes, which eases training and further boosts productivity.

The customer account is quickly acquired by simply scanning the bar-coded soil ticket attached to the bag from the route. Only those items rented to that customer are displayed for counting, speeding selection time. The operator selects items for 1-3 tubes, and begins counting into the vacuum-driven tubes or light frames. Multiple tubes improve productivity by keeping at least two choices available simultaneously. A "paddle wheel" hand-over-hand motion is used for small items such as napkins and bar towels, which are counted at over 4,000 pieces per hour, burst rates on large accounts. Productivity feedback information is part of the display, pacing the operator.

As items are switched, the collated bin contents are dropped to the soil belt, ready for combining with like soil classes for wash slings. Sorting of items is improved, as these pre-made piles are easier to handle into the slings than hand sorting on the belt.

Meanwhile, the counts are being recorded in database tables by the stations. Periodically, throughout the day, the host computer in the office is polling and collecting the counts in the master database. After the shift, someone in the office will simply take this completed information and perform an export/import operation directly into the route-accounting system, via networked computers. The process is quick and easy—export data from route accounting to the new host for soil-ticket information; then export data from the host system to the route-accounting system for count data. Typically, this is a once in the morning, once in the afternoon step. Vendor technicians can advise on the required networking steps. Since the data is transferred in a very simple manner—ASCII fixed length text files—any route-accounting system can be accommodated, from vendor-supplied systems to custom-written corporate systems. As long as there is networking and database import/export capability, it can be done. Some operators still use disk-based transfers, which work just fine as well.



Simple touch screen interface.

Light frame/basic light frame

Light frames are the simplest way to automate soil counting. A 'frame' that looks like a goal post sets up a light barrier, which is broken by the textile piece, resulting in a count. An array of light emitting beams is reflected back to the sensors, and



Bulk light frame system

when any part is broken, a signal is created to register a count. These advanced sensors are set up to detect any blockage across the entire area—resulting in positive detection over a large area—not just a simple single beam. This important detail improves accuracy and sets the light frame apart from more simplistic sensors.

The light frame can be part of a software system or simply attached to a readable counter. Only when set up with the software, however, will all those handwritten tickets of the past disappear. Productivity at the station still rises to almost 1,500 pieces per hour.

Two versions of the basic light frame are common. The bulk light frame configuration supports multiple light-frame sensors on one common touch-screen station. This is ideal for bulk accounts where a relatively low number of item combinations (usually 6-10) are assigned to each frame and the volume of pieces is high per average account. In this situation, typical of hotel/motel business, there are fewer changes between items and accounts, requiring fewer changes at the touch screen, so multiple frames can be assigned for a long duration of counting activity. In this way, it is also practical to count directly to the wash slings. Typically a cart dumper feeds a short belt that travels along the sets of frames.

The individual light frame pairs one touch-screen interface with each light frame, or sometimes 2-3 light frames. This is ideal for counting a limited number of items where there are still a wide variety of account sizes and more switching between accounts. Usually, this is applied to industrial accounts for counting shop towels. Sometimes one light frame can be mounted on a sliding track to be moved between several types of wipers, where each position feeds a sling directly.

The individual light frame system also can be configured for linen supply accounts. Each frame or set of frames has a dedicated touch screen, as operators will frequently switch between items and accounts. Productivity of this type of system does limit out at 1,500 pieces per operator hour. It is generally not practical to align the frames with individual soil classifications, so belts may need to be employed to carry away small piles of various items for secondary loading into a row of slings or carts—as soil classifications can number 40 or more in linen operations. For this reason, vacuum-based systems normally are employed for larger linen operations. Alternatively, light frames can be configured to feed holding bins, which can then dump to soil belts for classification.



Individual light frame industrial configured

Vacuum count

The vacuum-based system increases counting productivity to 1,800 to 2,400 pieces per hour. By pulling away each item with the force of the vacuum, the operator is relieved of throwing the items. The pieces only need to be separated and fed into the take-away tubes. Very small items can be fed extremely quickly through the tubes, resulting in high-count speeds. Also, with vacuum systems two or more tubes can be assigned to an item each, increasing the productivity of the counter. The touch-screen interface allows for quick changes in assignments of items to each tube. For this reason, vacuum-based systems are ideal for food and beverage accounts, as there are numerous different items to count, frequent changes between accounts and items and productivity to be gained due to a large number of smaller pieces.

For the sortation side of this system, each vacuum tube feeds an accumulator bin. The bin collates all items of the same type, then, when the item is switched to count another, the bin dumps to a soil belt. This belt travels to the sort area where carts or slings are located. Like items are manually picked up in the made piles and tossed as a lot into the appropriate soil container. Thus the goods are presorted in item-specific bundles, aiding the loading process.

A third tube system usually adds a dedicated item for that third tube. This tube carries a high volume item directly from the count station to a dedicated wash container—bypassing the soil belt. Additional dedicated tubes can be added but two additional (third and fourth) is often the practical limit. The third tube option with a vacuum-based system is often the highest productivity option. Typically one high-volume item represents a large portion of many linen supply operations (white napkins and bar towels are typical). The load size is controlled by this system as the inbound items to the third tube bin are counted—a pre-determined number of items based on the clean dry weight (expressed as a piece count) are allowed to drop into the wash container, thus assuring the perfect load size in the wash wheel or tunnel every time—an added benefit.



Vacuum count with classification sort

The variation of the vacuum-based soil counting works similar to the third-tube option, except that more than one item can be assigned to that tube. Four to six items can be 50% or more of the linen supply volume, and when all these items can be taken off the soil sorting belt, substantial plant floor space is saved. Also, typically the need for one or two belt-sorting operators is eliminated. Typically these 4-6 items each have dedicated bins feeding soil containers as in the third tube system, except in this case the tubes from each table can feed any bin. Valves are automatically opened or closed, depending on which item is selected at the count station. This takes several large-volume items off the soil belt and deposits them directly into the wash containers, again, measured by count to the exact wash-load volume size desired. This “classifier” tube can be the second or third tube.

As replacement costs for textiles increase, it becomes more apparent that inventory management is a necessity for today’s linen rental operator. Real life studies have shown ROI paybacks on the AccuCounter system to be less than two years. Your inventory must work harder for you. As profit margins shrink due to increased costs and competition, perhaps soil counting can be considered a source of newly found revenue. More attention needs to be paid to what’s in those “bags of money” entering your plant.

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