

## **Automation Versus the Pandemic**

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**As the world faces one of the most serious pandemics in its history, many of us are working from home and trying to stay safe from the ravages of COVID 19. While many of us are home, it is important to remember that many companies producing essential products are still operating their SMT production lines to keep the world supplied with critical goods and services. But due to the pandemic, procedures must be modified to ensure social distancing and employee safety. The distance between workers is critical. Many companies are turning to automation to help minimize the number of people needed for particular tasks. Among those companies are many users of Essegi Automated Component Storage Towers. Let's look first at the labor saving, both in numbers and cost, and then see some results from actual companies using this technology during the pandemic.**

**The Essegi towers provide the users with a huge advantage over other automated storage units. The Essegi Towers deliver stacks of components, and can pull and deliver the complete kit without the need for an operator to be present. When the BOM is sent electronically to the towers, each tower will pull the components needed for that kit that it contains, and when all the towers have pulled their stacks, only then is the operator called to collect the stack from each tower and deliver the kit to the SMT setup area.**

**Other storage towers deliver only one reel or tray at a time to the exit door, and that reel or tray must be removed before the next component can be delivered. Because of this, it is necessary that an operator be continuously present to remove each component from the exit. When the production run is completed, and the remaining component reels and trays need to be returned to stock, Essegi again has the advantage as the operator places a stack of reels or trays in the door and pushes one button. The Essegi Tower then puts all the parts in that stack away, without the need for the operator to be present. With other manufacturers towers, one component at a time is placed by the operator in the door, and then the operator must wait for the component to be loaded before another reel or tray may be placed in the door. So again, to restock parts an operator must be continuously present.**

**If multiple towers are used, the advantage of the Essegi systems increase. For example, a manufacturer using four towers from other brands, will need to use 2 to 4 operators to unload the kit from the towers, or to restock the components remaining after a production run. If 2 operators are used, they must move quickly back and forth between two towers to unload or to load the components. If four Essegi Towers are used, the kit will be pulled and stacked by each tower, and after the kit is complete, the towers will summon one operator who will collect the stack from each of the towers and transport the kit to the setup area.**

**For a more detailed example, let's analyze the pulling of a kit of 120 components from stock:**

**Four Essegi Towers working together will pull the 120 parts in 18 minutes. The operator time needed total is 80 seconds or 1.3 minutes (10 seconds to pull the stack from each tower, and 40 seconds to deliver the stacks to the setup area).**

Four other brand towers working together can pull the 120 parts in about 18 minutes, provided an operator is there and takes each component immediately when the tower presents it.

The operator time needed with 4 operators is 4440 seconds or 74 minutes (18 minutes for each operator pulling the kit and 40 seconds to deliver to the setup area).

The operator time needed with 2 operators (each operator unloads 2 towers) is 2240 seconds or 37.3 minutes (18 minutes for each operator pulling the kit from 2 towers and 40 seconds to deliver to the setup area).

Let's compare the labor costs needed in this example:

Assuming a loaded labor rate of \$22.00 per hour, and 50 kits pulled and put away per week, the calculations are as follows:

Essegi Towers 50 Kit pulls 65 minutes, 50 Kit remainders returned to stock 65 minutes, 130 minutes per week = 2.17 hours x 22.00 = \$47.74 per week in labor cost.

Other Brand Tower with 2 operators 50 Kit pulls 1865 minutes, 50 Kit remainders returned to stock 1865 minutes, 3730 minutes per week = 62.15 hours x 22.00 = \$1367.30 per week in labor cost. With 4 operators the cost doubles to \$2734.60!

So, considering just the 2-operator scenario for the other brand, the savings per week with Essegi is \$1319.56 per week, or \$68,617.12 per year. The advantage of the Essegi Towers ability to pull the kits without an operator present is very clear. Even more important than the savings today, the need for less operators is crucial in following social distancing rules in the factory.

An operator removes a single reel from another brand tower, and then waits for the next reel to appear.





**An operator removes a stacked kit from an Essegi Tower**

### **Customer Experience**

**I thought it would be interesting to contact some manufacturers using Essegi Automated Component Storage Towers who are still in daily operation, to see how they are coping with the situation and if their Essegi systems are helping deal with the pandemic. Several of our Essegi users agreed to speak with me for this article, and I agreed to keep their company names private.**

**Customer One - a midsized EMS company of approx. 100 employees on the West Coast**

**This company has five SMT production lines and specializes in both board design and quick turn prototype production. Many of their projects are 3 to 5 day turns. Their component inventory is stored in eight Essegi component storage towers which they have been operating for about three years. They run about seven different SKU's per day on each production line, or 35 SKU's per day total.**

**With regards to social distancing, the spacing of the SMT lines keep the line operators at a minimum distance of 10 feet from each other. By using the automated storage towers, only two people are necessary to pick up kits and deliver them to the set-up area. These people time their tasks so that one person is collecting components at the storage tower output while the other person is at the set-up area dropping off kits and picking up components which have been removed from the production line to return them to the automated storage units. In the set-up area, the customer has spaced the set-up benches for safe distancing. In the box build and final assembly area, people are using every other station, leaving an empty station between them for proper distancing.**

**This company is managing to produce 75 to 80% of its normal production output even with the current distancing and safety precautions. The manager did mention that before the storage towers were installed, up to eight people were used to pull kits, which would not be possible under the current social distancing regulations.**

**Customer Two - an EMS company of approximately 200 employees in the Midwest**

**This EMS Company has continued operations and is producing about 70% of its pre-Covid 19 output. About 170 employees continue to work daily. Increase distancing between employees is being practiced. The company has also furnished all employees with masks, and the work areas are being sanitized three times daily. All in person meetings have been canceled, and replaced with electronic virtual meetings.**

**This company utilizes five Essegi automated component storage towers which support four SMT production lines. Only one individual is required to collect the components at the storage tower outputs, and transfer them to the setup area. The same individual is used to collect the component reels and trays from a completed job and return them to the automated storage towers to be returned to inventory. The management commented that the work done by the component storage towers would have required 2 to 3 additional employees if the towers were not in use. During this time of social distancing, that one individual can handle the task is quite valuable. Currently, about 70% to 75% of normal output is being achieved during the pandemic.**

**Customer Three – An EMS/OEM company with 120 Employees located in the Northwestern U.S.**

**This EMS company has 150 employees and has continued operations during the pandemic producing essential assemblies. They use 5 Essegi Towers and operate 4 SMT Production lines. All employees are provided protective equipment and spacing in the workspaces has been increased for social distancing. Sanitizing in the work area is carried out during each shift.**

**One person per shift is used to pull the stacked kits from the Essegi Towers and transport them to the setup area. The Production Manager said that prior to the addition of the Essegi Towers, 4 to 5 people pulled and put away kits in the component stockroom. He pointed out that under the current distancing requirements, this would not have been possible, and the towers have enabled them to keep production at 80% to 85% of pre-pandemic volumes.**

### **Conclusions**

**It is clear that the Essegi Towers' ability to pull complete kits in stacks, without the need for an operator until the kit pull is finished, offers the user multiple advantages. The large saving in labor cost due to the operator time needed with other brands of towers offers continuous savings to the user. During this pandemic, the fact that far less people are needed to pull and put away kits offers clear advantages for social distancing, while still allowing the enterprise to run a high level of production. Automation of their Component Storage using the Essegi Towers has allowed many companies to successfully cope with the problems caused by this pandemic.**