## Picking Accuracy 100% - Is It Possible?

In modern manufacturing, with customers expecting more customized product variants for their needs, also the amount of small different items required for these variations have increased many folds. If, for example, an industrial drill manufacturer has 10 products, with 10 variants of each product and each product variant has 10 unique parts and 30 parts which are same between different products and variants. To manufacture these units, the manufacturer needs 2000-4000 parts. Each of these product variants have small differences in their parts, for example a seal made of different materials for each variant.

It is very probable that your warehousing operations have to deal with a lot of similar items in the storage. Let's take a simple example, shims. They are relatively small, but highly important parts of every machinery. There might be tons of different shapes and sizes that are hard to distinguish by even a trained eye. The problems become even harder when you consider different material differences. Picking the right part is crucial to avoid rolling effect of costs related errors.

Most products, at some point of their life, are being stored or warehoused. Especially those items which cannot easily be labelled separately, being special bolts, various components or sub-assemblies, the user needs to collect the right product. Particularly, where there are thousands of picks in a day, errors in a hurry are causing pain to assembly, deliveries and elsewhere in the process. Therefore, we need the items which are collected/picked to be presented in such way, the errors in picking are possible to avoid.

Cost of picking errors

Pickings errors are catastrophic for your operation because they can potentially explode the avalanche of margin-eating costs. The most immediate cost is use of courier services to deliver the right parts to the customers in a hurry. But it doesn't stop there. Handling the claims and figuring out what caused the error in the shipment will burden the warehouse management. Of course, it is necessary to fix the error somehow. If you're lucky, there is enough inventory to send the right part afterwards. However, breaking the normal picking flow by injecting hurry orders just add extra costs that should have been avoided in the beginning. In the worst case, if there is not enough inventory left, the picking errors cascades down to the supply chain.
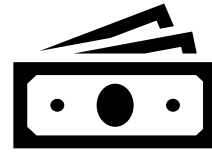
Perhaps, one customer got the last, but wrong, part that was really needed by the next customer. Then you have two customer claims to take care of. How to avoid the painful "drawing empty"? One way is to keep inventory high, with extra items, which will cost extra. Another way is to make perpetual inventory counting, but it is painful process and does not make the problem disappear. If picking errors are frequent, the customer relationship will suffer, and you might lose revenue to your competition.

In production environment, if even a single part is not available, the variant cannot be finished. The worst case is when the unavailability is noticed just during the production or while getting an order for shipment. Work in progress (WIP) means you have tied your capital in non-productive way while you could use your inventory to finish another variant were part is needed. The missing items are not just as annoying as a tool missing when you need it, but also major cause of delays or disruptions in the manufacturing or distribution processes. In least case it causes loss of time, in worst case it stops the production or shipment.

In many businesses there is silent knowledge of where some items are located and how to identify them. This becomes a challenge, when people come and go, and the knowledge is lost. It also creates unnecessary learning curve when training new personnel. Sometimes, it might take months to get new people productive. Good, simple to learn, picking process is essential for successful on-boarding.

Picking the right parts
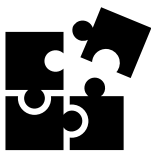
Investing in warehouse software and automation systems is necessary to avoid picking errors. However, it is not straightforward to decide which solutions to bet your money on. Most of the warehouse systems don't address the root cause but try to minimize the probability of errors. In reality, if a person is presented with too many options to act on, they will eventually make a mistake. For example, a shelf with bins of similar items side by side will increase a probability to pick from a wrong bin. If, on the other hand, the person is presented only one bin, there is no way he could pick the wrong item. Limiting the options would be the best bet for your investment.

Enterprise resourcing planning (ERP) systems are high level tools to manage stock items in an abstract, forward looking, manner. By nature, they are usually disconnected from the physical world. They manage items and products structures in the whole storage level and rely on fixed process flow. Picking errors are just something they manage with but cannot prevent nor detect them. Some more sophisticated software systems, like warehouse management system (WMS) do understand the internals of the warehousing process. They can track each stock keeping unit (SKU) location and balance. However, they too, are disconnected from the physical world. They don't know if a person picked from a wrong bin or wrong number of items. All the software solutions rely on data that is entered by humans. It is common knowledge that SAP don't make mistakes, people do when enter data to SAP.

In the ideal world, there would be only that product/item you need presented to the user physically. If the automated system would bring the item you need, and only that item to you, then there would be no problems with picking errors. Alternatively, there are also ways to guide the picking process, for example by pick-to-light system. In this case, the laser or light points to products which need to be picked next. This process is not fool proof, as the items on a tray or on a shelf might have moved, or operator accidentally picks another product and then picking errors could occur. Benefit of bringing only one and exactly the correct item to operator is reducing picking errors to basically zero.

Picking the right amount

While making sure the right part is picked, it is equally important to pick the right amount. One of the oldest ways to accomplish this is to support the person with a scale. Based on unit weight it is easier for a person to make sure the correct amount was taken. This is done by weighting the container of items when it goes into the storage. When each item or box of items is weighted while they go back to storage, and we know the weight of each item, it is possible to automatically keep the inventory and avoid the problems caused by missing items in the storage. There are other techniques, like machine vision or RFID. But they just are not that practical, accurate enough yet or are just not commercially feasible yet.

When looking for alternatives for picking accuracy, challenge your current knowledge. Make sure to check the latest in the market: https://www.konecranes.com/equipment/agilon

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