



Implementing a WMS for Raw Materials

The business benefits of a Warehouse Management System (WMS) are well known: Increased productivity, improved customer service, reduced OPEX, quality of work performed, etc.

But usually everyone's attention to the implementation and operation of WMS systems focuses on, or at least starts from, the enterprise's finished products. Therefore underestimating the undoubted importance of raw materials management for the supply chain. As in the case of finished products, one of the major problems in the processing of raw materials in the manufacturing industry is the lack of knowledge of their actual stock in real-time.

To fully comprehend the above, we will examine the management of Raw Materials through two examples, one dealing with conventional management methods, and one with the use of a Warehouse Management System (WMS).

1. Management with conventional methods

We will look at two basic functions of a typical Raw Materials warehouse; receiving raw materials from suppliers and supplying raw materials to production.

1.a Receiving Raw Materials from suppliers

In the case of raw materials being received by suppliers, the physical delivery is made first, in accordance with the supplier's shipping papers, any delivery differences are recorded on paper and then records are entered in the central system (ERP). It is obvious that this procedure carries the risk of recording errors.

1.b Supply of Raw Materials in production

Supply of Raw Materials for production is usually done by printing a list of raw materials, based on the recipe of the product being produced (Bill of Material-BOM). Workers in the warehouse use the supply list to empirically find the Raw Materials in the warehouse and deliver it to production. At the same time they correct the list of actual delivery quantities and in many cases add some extra items other than the original recipe proposal.

Upon completion of the production process, the list is being recorded in the ERP in order to consume the raw material inventory and update the available inventory.

This procedure has the following disadvantages:

- Delayed updating of raw material allocations in production, resulting in no knowledge of inventory available at any given time
- Existence of discrepancies between logistical and physical inventory due to typing errors during the registration process.
- Difficulties for the company's procurement department with creating raw material orders for suppliers.



2. Using a WMS

Implementing a Warehouse Management System creates a radical change in the way the warehouse operates, which minimizes errors and eliminates duplicated records. The procedures for a typical Raw Material Warehouse are as follows:

2.a Receiving Raw Materials from suppliers

The company's procurement department records the original purchase order in the central system (ERP) and sends it to the supplier. Upon confirmation by the supplier of the items, quantities and delivery date, the purchase order in the ERP is confirmed. The WMS is then updated electronically with the necessary information of the expected shipment, including the order code, supplier, registration date, date of receipt as well as expected items and quantities. This way, the warehouse managers know on a daily basis what exactly they should expect to receive and can prepare for the delivery.

Using the electronic file of the expected order, the delivery is done using wireless portable terminals and the storage units are being marked with a barcode label, according to the UCC / EAN 128 standard. Storage is processed with wireless terminals that scan and read the storage unit's barcode and location barcode. Upon validation of the delivery by the WMS, the ERP is also updated in real-time and the delivery is completed. Thus, all information is readily available and free from the errors of keystrokes.

2b. Supply of Raw Materials in production

Raw material deliveries are made by employees using wireless terminals based on production orders. The operator is informed of the exact position of the stock and, by scanning the barcode of the item carrier (pallet, box etc.), they update the system of the quantity, lot and expiry date of the item in real time. The system ensures freshness (First-In, First-Out / FIFO) during the collection and administration process. The WMS then electronically updates the ERP of the administration. Any Raw Material Returns from the Production Warehouse (WIP) to the Raw Material Warehouse are imported into the warehouse and reintegrated back into the warehouse stock using a wireless terminal device.

With a WMS, accurate, rapid and direct data of both the Raw Material inventory and the manufactured items is available in both systems (WMS / ERP). In addition, with the use of wireless terminals, we know the exact locations of the items in the warehouse as well as the batches of raw materials allocated to production. Expert knowledge is no longer required to find the items, since the information is available in the WMS.

3. Conclusions

As can be seen from the above, the proper management of Raw Materials through a WMS is of particular importance to a business. The benefits are obvious, especially in industry sectors such as Food, where proper management is combined with the requirement for traceability at all stages of the production process.