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SPARE PARTS' WAREHOUSE: IMPORTANCE, FUNCTIONS, INNOVATIVE SOLUTIONS

Sophia Zhigula

National Aviation University, Kyiv

Scientific supervisor - Olena Volovyk

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The main task of logistics is to manage efficient and effective flow of goods and services and their distribution, as well as to ensure their continuity. Ideally, logistics should ensure that the right amount of goods is available when it is needed, exactly where it is needed, and at a cost that will allow the company to maximize its profits. Most manufacturing companies are faced with the problem of lack of spare parts for equipment at the most critical moments, so all enterprises should have at least small warehouse with necessary spare parts in order to ensure uninterrupted operation and eliminate downtime. The function of a spare parts warehouse is to stock all critical inventory parts, material, and tools necessary to maintain and keep a manufacturing line up and operational (tabl. 1) [1].

Table 1.

Spare parts classification methods

| Classification | Characteristics | Target Number | Target Value | Risk |
|------------------|---|---------------|--------------|---------|
| Consumable parts | The probability of fault is 100% and the frequency of replacement is very high.(e.g. the frequency of replacement less than 1 year) | 45% | 15% | 100% |
| Wear parts | The probability of fault is 100%, but the frequency of replacement is not so high. (e.g. the frequency of replacement more than 1 year) | 35% | 25% | 100% |
| Insurance parts | The probability of fault is from 20% to 100%, and will be used after 5 years. | 15% | 30% | 95% |
| Accident parts | Normally, these parts will never be used except the reason of quality, design, accident and so on. | 5% | 30% | unknown |

Investment in spare parts can account for 5% to 10% of a company's investment base. In traditional manufacturing, entire machines are produced in high volumes in order to lower overall costs. Long lead times also mean that businesses often stock up on these expensive spare parts to avoid the high price of downtime. Some companies rack up storage costs for parts that are rarely used or end up

becoming obsolete. The lead time of supplying spare parts when company has the spares in stock can be reduced in 3-5 times.

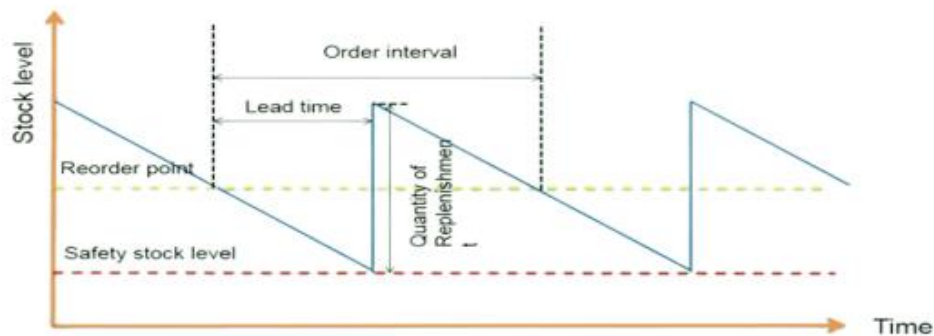


Fig.1. Relationship between inventory and consumption

In order to operate the enterprise effectively it is important to focus on technological innovative solutions which may increase the position of the company in the competitive environment.

It is impossible to manage a warehouse of wear parts without a prepared Warehouse Management System. It will allow organizing targeted storage, efficiently managing the acceptance, placement, movement and shipment of goods. It will help to optimize the planning of the work of personnel and warehouse equipment [2].

Radio frequency identification tags attached to each inventory item can transmit real-time data to and from the warehouse floor and inventory management applications, allowing warehouse teams to use mobile devices to track inventory from the moment it arrives.

Warehouse Control System is responsible for keeping everything running smoothly, maximizing the efficiency of the material handling subsystems and often, the activities of the warehouse associates themselves.

It is obvious that digital tools significantly increase the accuracy of inventory, help reduce the time spent on maintenance and repair work, and most importantly, create a link between inventory management and end-to-end business processes.

The rational organization of the warehouse of spare parts at the enterprise helps to reduce storage costs, speed up the processes of acceptance and shipment of spare parts, and increase inventory turnover. To do this, it is necessary to correctly design a warehouse, choose the optimal way of placing and storing items, and installing hardware and software.

List of references:

1. Brian Barry. How to Improve Your Spare Parts Warehouse Performance. Retrieved from: <https://www.fcaco.com/blog/improve-spare-parts-warehouse>

2. Stock Management Planning. Retrieved from: <https://trademaster.ua/logistic/132>