

LOGISTICS EXECUTION SYSTEM FOR INDUSTRIAL METAL SHELVING FOR STORING AUTOMOTIVE PARTS

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Rezumat. Stocarea verticală a pieselor în industria auto prezintă numeroase avantaje pentru producătorii de automobile, printre care se numără maximizarea spațiului, creșterea eficienței prin reducerea timpului de selecție a pieselor, costuri reduse de proiectare și mentenanță, siguranță sporită, acces facil și imediat, precum și – nu în ultimul rând – un spațiu de lucru agreabil pentru operatori. Sistemele moderne de stocare verticală sunt stabile și sigure, reducând riscul de accidente, și pot fi adaptate la diverse tipuri și dimensiuni de piese, oferind o soluție versatilă. Integrarea ușoară (pot fi conectate la sisteme de transport și manipulare automatizată) și durabilitatea (aceste sisteme sunt construite din materiale rezistente și suportă utilizarea intensă) le transformă în alegerea ideală pentru industriile mari de producție în serie.

Abstract. Vertical storage of parts in the automotive industry presents numerous advantages for car manufacturers, including maximizing space, increased efficiency through reduced part selection time, lower design and maintenance costs, enhanced safety, easy and immediate access, and not least, a pleasant workspace for operators. Modern vertical storage systems are stable and secure, reducing the risk of accidents, and can be adapted to various types and sizes of parts, offering a versatile solution. Its easy integration (can be integrated with transport and automated handling systems) and durability (vertical storage systems are built from durable materials and can withstand heavy use) make it the top choice for major mass-production industries.

Keywords: vertical storage, parts pallet racks, quick parts identification, performance.

1. Introduction

Vertical storage of parts in the automotive industry presents numerous advantages for vehicle manufacturers, such as:

- maximizing space
- increased efficiency by reducing part selection time
- lower design and maintenance costs, enhanced safety
- easy and immediate access

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- a pleasant appearance of the workspace for operators

Modern vertical storage systems are stable and secure, reducing accident risks and adaptable to various types and sizes of parts, offering a versatile solution.

Its easy integration (can be integrated with transport and automated handling systems) and durability (built from durable materials and able to withstand intense wear) make it the top choice for major series-production industries.

2. Current Status

There are a variety of storage systems used in the automotive industry, each with its own advantages and disadvantages. Choosing the right system depends on several factors, including:

- Type of stored materials: Materials may be solid, liquid, or gas, with varying dimensions and shapes
- Storage volume: The amount of materials needing storage may vary significantly depending on automotive production
- Turnover rate: Frequency of material use can influence stock organization.
- Available space: The size and layout of the warehouse can limit storage options
- Cost: Purchase, installation, and operation costs must be considered

Benefits of Using Efficient Storage Systems in the Automotive Industry:

- Cost reduction: Efficient storage systems can optimize space, reduce waste, and improve operational efficiency, leading to significant savings
 - Increased productivity: Fast and easy material access can accelerate production and reduce downtime
 - Improved safety: Well-organized storage reduces the risk of accidents and creates a safer working environment
 - Enhanced customer satisfaction: Timely and complete deliveries rely on efficient stock management, contributing to customer satisfaction.
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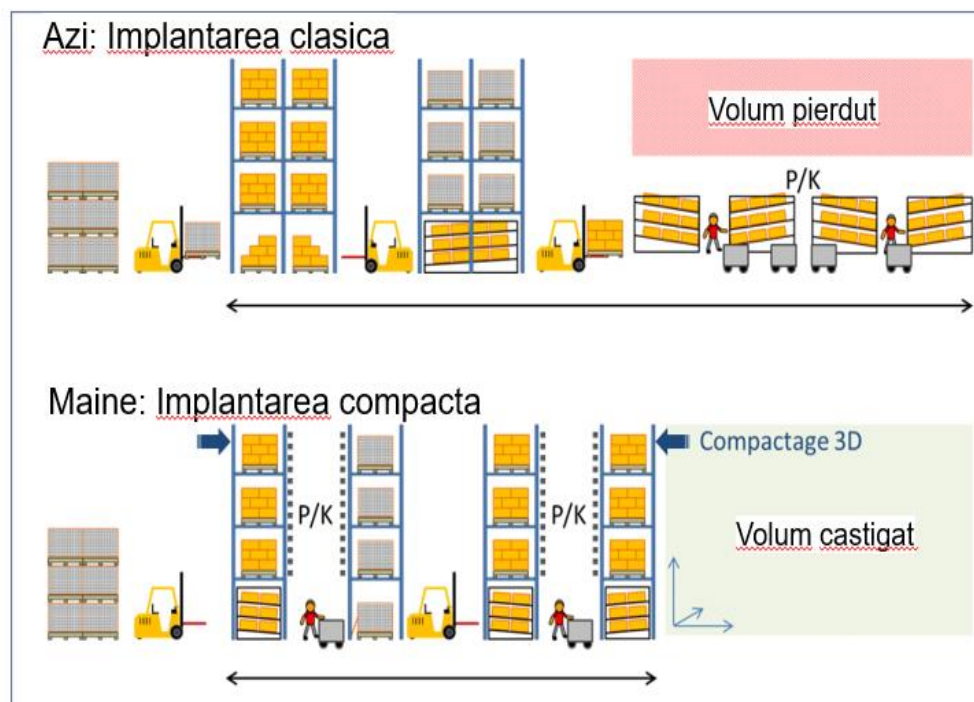


Fig. 1. Illustration of the benefits of vertical storage and the creation of a kitting zone between pallet racks

Vertical storage allows efficient use of warehouse height, saving floor space, especially important in warehouses with limited space where maximizing storage capacity is crucial (Fig.1).

By implementing an automatic vertical storage system, storage space can be reduced by 70%, while increasing operational efficiency by 20%.

Benefits of Vertical Storage in Managing Low-Consumption Rates

Vertical storage allows better organization and visibility of parts [1].

Using suitable racks and storage systems, parts can be clearly grouped and labeled, facilitating identification and retrieval (Fig.2).

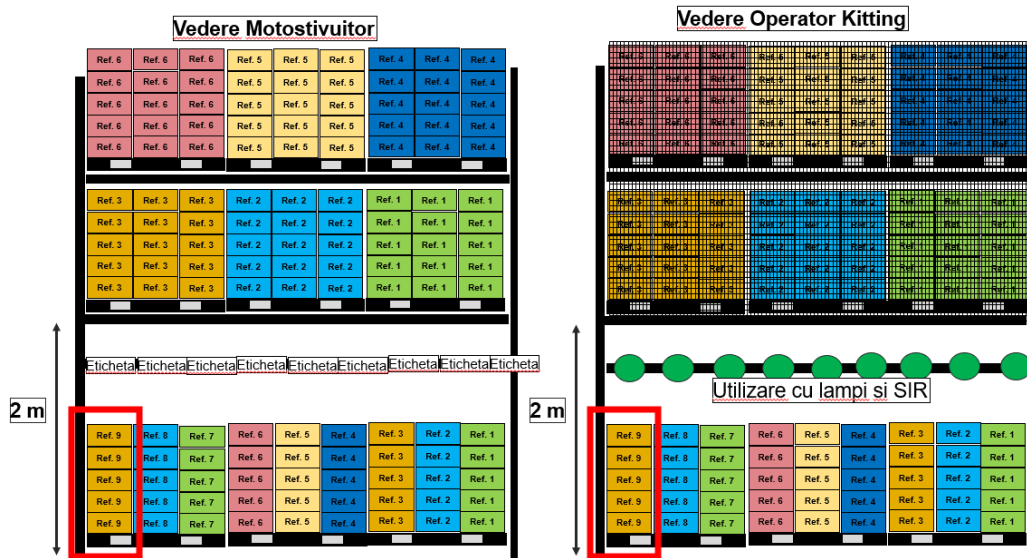


Fig. 2. The two views of the pallet racks: forklift operator supplying parts, workstation operator retrieving parts

Flexibility in Stock Management

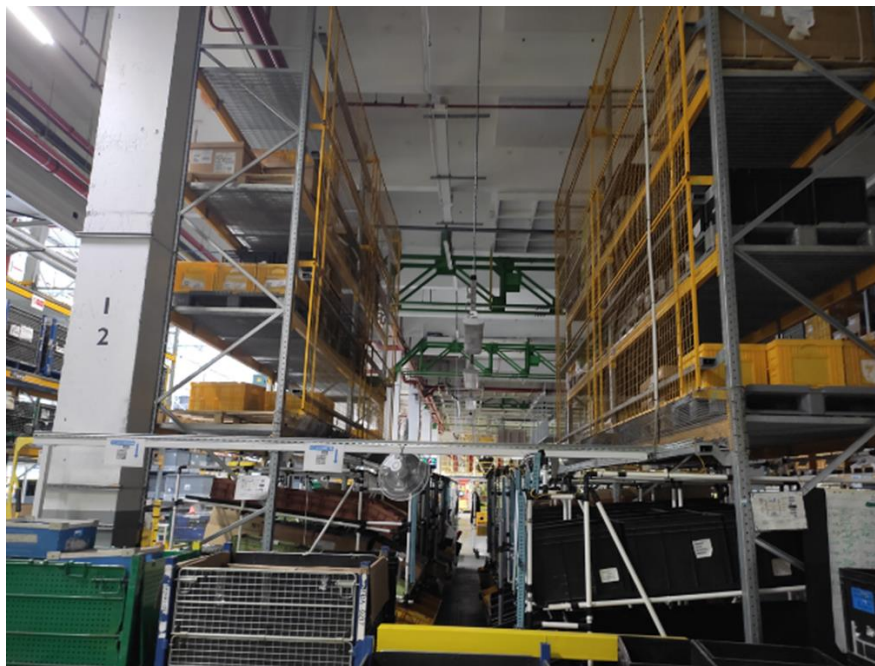


Fig. 3. Vertical Storage – Picking Kitting Workshop, Assembly, Pitesti

Vertical storage enables more efficient stock management. Parts can be organized by category or other specific criteria, making identification and handling easier (Fig.3).

Additionally, this storage method allows easier reorganization and quick adaptation to production process needs [2].

Conclusions

Storage systems play a vital role in the automotive industry, ensuring efficient supply chain management and contributing to the overall success of vehicle manufacturers.

Choosing the right storage system is a crucial decision that must be taken carefully, considering each business's specific needs.

Vertical part storage is an efficient and cost-effective solution for the automotive industry, capable of maximizing available space, reducing costs, and improving operational efficiency.

Choosing the appropriate vertical storage system is an important decision, requiring careful consideration of a company's specific needs.

R E F E R E N C E S

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