IARJSET ISSN (O) 2393-8021, ISSN (P) 2394-1588

International Advanced Research Journal in Science, Engineering and Technology

ISO 3297:2007 Certified ⁜ Impact Factor 8.066 ⁜ Peer-reviewed / Refereed journal ⁜ Vol. 10, Issue 9, September 2023

DOI: 10.17148/IARJSET.2023.10920

Review on Paver Machine for Rigid Pavements

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Abstract: The construction industry is witnessing a paradigm shift in the way rigid pavements are laid, thanks to cutting-edge paving machines. These innovative machines have transformed the traditional methods of pavement construction, offering efficiency, precision, and sustainability. Paving machines for rigid pavements are equipped with state-of-the-art technology, enabling them to achieve superior levels of accuracy in pavement thickness and smoothness. They reduce manual labor, minimize material wastage, and expedite project timelines significantly, thereby reducing overall construction costs. These machines are versatile, accommodating a range of pavement designs and materials, from conventional concrete to advanced composite materials. Moreover, their automated control systems enhance safety by reducing human exposure to construction hazards. Furthermore, paving machines play a crucial role in promoting sustainability. They enable the recycling of old pavement materials, reduce greenhouse gas emissions, and minimize the environmental footprint of construction projects.

In summary, paving machines for rigid pavements represent a transformative force in the construction industry. Their precision, efficiency, and sustainability benefits make them indispensable tools for modern infrastructure development, ensuring durable and eco-friendly pavements for generations to come.

Keywords: Rigid pavement, paving machine, slip form pavers, fixed form pavers, white topping.

I. INTRODUCTION

The construction and maintenance of rigid pavements, such as highways, airport runways, and industrial flooring, have long relied on advanced machinery to ensure precision, efficiency, and longevity. Among these critical tools, paving machines stand out as indispensable assets in the modern construction and infrastructure development landscape.Paving machines are engineering marvels designed to lay down concrete or asphalt mixtures with unparalleled precision and speed. They play a pivotal role in the creation of sturdy, flat, and enduring surfaces that can withstand heavy loads and provide a smooth, safe, and comfortable ride for vehicles. These machines have evolved over time, incorporating cutting-edge technology and innovative features to meet the ever-growing demands of the construction industry.

This introduction will delve into the world of paving machines for rigid pavements, exploring their various types, functionalities, and the transformative impact they have on infrastructure projects.

II. LITERATURE REVIEW

The literature review paper related to paving machine for rigid pavements was carried out, the main objective is to find a best possible outcome for pavers for rigid pavements.

Aimin Sha et al. The latest research findings related to eco-friendly road pavements were summarized and discussed according to six different key characteristics: permeable, noise reduction, self-luminescence, exhaust decomposition, low heat absorption as well as anti-icing/de-icing. The corresponding technical principles, research advances, materials and structures, performance evaluation and applications were analyzed, and the associated future trends were prospected.

Sannidhi Babasaheb Patil et al.[2] Paving is the most complicated and demanding road construction and maintenance operation. New automated technologies must be explored to increase the efficiency and performance of the operation as the costs for construction, inspection, and maintenance are however increasing. The potential for automating steps in the construction process is studied. The possibilities of using automated techniques are determined. Based on this concept, a new automated construction machine is being developed. In this paper automated machines with low cost used for construction and maintenance of roads will be presented.

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Reduce cost , Reduce time, Increase quality of roads,Reduce traffic delays due to construction andmaintenance.Increase safety for the construction workers as well as road users.

Abhishek Rana et al.[3] Concrete pavements have been used for many years. However the recent advancements in the concrete paving technology have lead to better transportation facility. Here we shall discuss the history of concrete pavements and how it evolved from time to time. There is a disadvantage of concrete pavements, which is a high initial cost. However the concrete pavement proves to be more durable in the long run. Concrete pavements are generally used in almost all the developed countries, including some of the developing countries. Hence it is very important to find ways and techniques so that we can do concrete paving more effectively and efficiently. Research has been conducted and new technology and equipments have been developed which satisfies that need. New modern techniques which are currently being used have been discussed.

III. CONCLUSION

In conclusion, the introduction of advanced paving machines for rigid pavements marks a significant leap in the construction industry. These innovative machines have revolutionized the way we build roads, highways, and other critical infrastructure. Their precision, efficiency, and ability to deliver uniform and durable concrete or asphalt surfaces are unmatched. Moreover, these machines improve construction timelines, reduce labor costs, and minimize material wastage, ultimately benefiting both project owners and the environment. As technology continues to evolve, paving machines for rigid pavements will play a pivotal role in shaping the future of infrastructure development, ensuring safer, longer-lasting, and more sustainable transportation networks for generations to come.

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