

CASE STUDY

110,000 LBS. AGV SYSTEM FOR AGRICULTURAL EQUIPMENT

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SUMMARY

An agricultural company, renowned for its innovative approaches to farming machinery, identified a need for an efficient method to move their newest tractor through various assembly stages. Recognizing the complexity and the high-capacity requirements of the task, they sought an automated solution to streamline the assembly process.

“When using this AGV system, it reliably follows a predetermined path, eliminating the need for manual operation and reducing unknown variables, ultimately saving time.” - Brendan Espy, Mechine Design Engineer



AGV MOVES 110,000 LBS

Designed and built to the client's specifications, the battery-powered Tugger was constructed to handle 110,000 lbs. and efficiently moves the chassis throughout the plant.



28ft CHASSIS HANDLING

The 28ft chassis is supported in two positions, utilizing battery-powered Tuggers and a low-cost bogie unit. This saves on material costs and maintains flexibility.

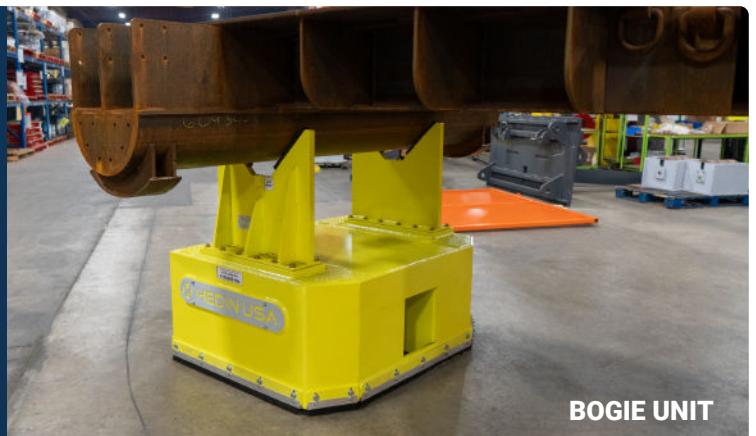


SAVING WITH AUTOMATION

The automation partner of the heavy industry is here; our GT Tugger is fitted with hardware to safely and automatically drive along the assembly process.



BATTERY-POWERED TUGGER



BOGIE UNIT

THE PROBLEM

The primary challenge was designing a system capable of handling a large tractor, with a capacity requirement of 110,000 pounds, through all assembly stages. The process involved pulling the tractor into each station, performing assembly work, and then moving it to the next station in an assembly line style.

THE SOLUTION

The solution was a wheeled transporter with Automated Guided Vehicle (AGV) capability. This system facilitated easy movement of the tractor throughout the plant. The design included:

- **Column Lifts and End of Line Lift:** Used for efficiently handling the tractor at the beginning and end of the assembly process.
- **Dual Component AGV Transporter:** Features an AGV tugger and a bogey unit, optimizing maneuverability and cost while accommodating the tractor's length.
- **Full Automation with Safety Features:** Incorporates safety scanners to detect obstructions, ensuring a smooth and safe operation.



IMPLEMENTATION

The AGV system has been in testing at the agricultural company's site since early last year, with full production mode anticipated to commence shortly. Although it's a new line and direct time savings comparisons are challenging, the automated process is expected to offer significant efficiencies over manual alternatives. The AGV system always follows a reliable path, so it's less likely to make mistakes or be inefficient like manual tractors.



CONCLUSION

The objective was to enhance efficiency in the assembly of heavy machinery using automation. The project's success highlights the power of automation, client collaboration, and innovative engineering solutions to tackle logistical challenges in industrial settings.