

# CASE STUDY

# AGVS

TRANSBOTICS PROVIDES  
EFFICIENT AGV FOR  
TRANSPORTING ALUMINUM COILS

A client in the primary metals industry approached Transbotics to play a pivotal role in facilitating an all new fleet of vehicles designed to carry heavy aluminum coils. The aluminum coils can weigh as much as 60,000 pounds, continually stressing their already outdated AGV system. The client had specific design needs that the team at Transbotics needed to address; namely: Decrease maintenance requirements while increasing process uptime and consistency of throughput for operational efficiency and profitability.

The primary purpose of the AGV system at this facility is to move aluminum coils from a hot mill to other process lines. The client's expectation was not just to increase system uptime but also reduce cycle times, labor costs, and eliminating both floor and product damage with gentle handling of loads. Transbotics was able to design a vehicle that was powerful, yet light enough and more maneuverable to effectively solve the challenges presented.

## THE VEHICLE (AGV)

The project consisted of 13 vehicles and took a little more than a year to complete. The AGV design consisted of a revolutionary lightweight structure weighing nominally 35% less than the existing design employed by the client. This weight reduction dramatically improved battery performance, run time and maintenance requirements.

The AGV also featured electronic four-wheel independent steering, which provides tight maneuvering, smoother cornering, and crab-steer (sideways) travel. This advanced generation of steering was employed to replace the Ackermann steering geometry utilized on the client's existing AGV fleet. The Ackermann steering introduced inefficiencies such as increasing amp draw and vehicle maintenance requirements. It also contributed to floor damage where the AGVs traveled repeatedly through corners throughout the plant.

Although battery performance was vastly improved by the decrease in the overall weight of the vehicle, the battery technology was also addressed independently. Lead acid battery rooms were removed and satellite charging stations were employed to service a more efficient Lithium based solution. This improvement translated into significantly longer run times and faster recharge times. The overall re-design of this vehicle was quite successful allowing the client to realize a significant savings in annual maintenance and repairs.

The new generation laser guided vehicle was designed to meet hot coil transport needs in a challenging Aluminum Mill environment. The heavy-load AGV successfully delivered a vastly improved level of performance and cost efficiency across the board for the client. The Transbotics AGV stands ready to serve both the aluminum and steel industries.