

INDUSTRY
ELEVATOR**APPLICATION**
CAR LIFT FOR AUTOMATIC
PARKING SYSTEM**PRODUCT**
MEGALINEAR RPP14 XHP**SITUATION/APPLICATION**

Designed to minimize the area required for parking cars, the use of automated parking systems (APS) is becoming more popular in urban areas. In multi-story parking garages they provide parking for cars on multiple levels, stacked vertically to maximize the number of parking spaces while minimizing land usage. The APS utilizes a mechanical system to transport cars to and from parking spaces in order to eliminate much of the wasted space common in a conventional multi-story parking garage. It is functionally similar to automated storage and retrieval systems (ASRS) used in industry for smaller items. The car is driven onto a platform at the entrance and the system moves the car into a storage space, retrieving it later upon request. The APS allows better security and saves time for the user as they do not have to drive around searching for a parking space.

APS systems handle large volumes of cars and store them at high speed with precision placement. They must do this repeatedly without positional errors. They are required to transport every type of car without causing damage, from small lightweight subcompact cars to heavier, larger passenger vehicles. The drive moving the car platform must be reliable and strong with smooth, precise and consistent motion. It must lift heavy loads and provide a high safety factor.

THE PROBLEM

A manufacturer contacted Megadyne for assistance with the design of a new platform drive. They were concerned with the level of positional accuracy and low safety factor results obtained in internal tests. The standard construction open end polyurethane timing belt they had selected for testing had experienced elongation and frequent breakage in their accelerated life tests. The steel cord in the belt was not able to handle the loads the application exerted.

THE SOLUTION

Megadyne was able to provide the solution with a standard item in their product range. Designed specifically for lift applications, Megalinear RPP14XHP with 92 ShA thermoplastic polyurethane and extra strong steel cords (more than 30% stronger than standard products) resolved the previous drive problems.

THE RESULT

RPP14XHP corrected the elongation issue that compromised positional accuracy and also increased the safety factor to an acceptable level as belt breakage was eliminated. Its RPP (reinforced parabolic profile) belt tooth profile enhanced positional accuracy with reduced backlash while providing optimum tooth meshing with high tooth shear resistance. The customer now has a reliable, strong and safe platform drive that meets all the demands of the application.

With a wealth of experience in lift applications, founded on years of research and development, we work closely with manufacturers to supply drive systems with the highest level of accuracy and operational safety.

