

Automation Manufacturer Reduces Robotic Impact Damage

THE PROBLEM

A mechanical engineering team designing an automated system identified recurring damage caused by incidental impacts during operation. Rigid stops and hard interfaces transferred shock directly into robotic components, leading to misalignment, component stress, and increased maintenance. The team needed a way to manage impact energy without sacrificing system throughput or introducing excessive rebound.

THE SOLUTION

MPC recommended a urethane foam solution engineered to absorb impact energy through controlled compression. By selecting a foam with appropriate density and recovery characteristics, MPC provided a cushioning solution that slowed impacts rather than stopping motion abruptly. The foam components were integrated into impact zones and hard stops within the automation cell.

THE RESULT

The urethane foam bumpers reduced peak impact forces by 60%, minimizing stress on robotic components and reducing impact-related damage by 75%. Overall system stability improved and maintenance requirements decreased. The solution provided reliable, repeatable impact protection without compromising cycle time or system performance.

MARKET

Industrial

AMR and Automation

SOLUTION

Protection & Dampening

PRODUCT

Polyurethane Bumpers

TECHNICAL SPECIFICATIONS

MATERIAL

Polyurethane foam

TUNED PROPERTIES

Density, recovery characteristics

FUNCTION

Impact energy absorption via controlled compression

APPLICATION

Impact zones and hard stops in automation cells

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