

Robotics OEM Extends Roller Life Under Heavy Loads

THE PROBLEM

A robotics OEM was developing a high-load material handling system where standard rollers were failing prematurely. The application involved continuous operation, elevated loads, and frequent start-stop motion. Previous roller materials experienced excessive wear, deformation under load, and inconsistent performance over time. These failures led to unplanned maintenance, system downtime, and concerns about long-term reliability as production volumes increased.

THE SOLUTION

MPC worked with the engineering team to develop a high-load cast polyurethane roller engineered specifically for the operating conditions. The solution focused on optimizing both material formulation and roller geometry to manage load distribution and deflection. By selecting a urethane formulation tailored for high compressive strength and wear resistance—and validating geometry through engineering review—MPC delivered a roller designed to maintain consistent performance under sustained heavy loads.

THE RESULT

The custom polyurethane rollers delivered 60% longer wear life and dimensional stability in field operation. Load-related deformation was reduced by 40%, traction consistency improved, and maintenance intervals increased by 50%. The OEM was able to improve system reliability while reducing total cost of ownership, supporting long-term scalability of the robotic platform.

MARKET

Industrial

AMR and Automation

SOLUTION

Motion Transfer & Rolling

PRODUCT

Polyurethane Rollers

TECHNICAL SPECIFICATIONS

MATERIAL

Solid Polyurethane

TUNED PROPERTIES

High compressive strength, wear resistance

PROCESS

Cast molding, engineered roller geometry

APPLICATION

High-load material handling, continuous start-stop motion

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