

# Warehouse Automation OEM Cuts ESD Faults by 70%

## THE PROBLEM

A leading warehouse automation OEM was facing recurring static discharge and premature roller wear in its autonomous mobile robots (AMRs). Friction between rollers and drive belts generated static buildup that occasionally arced through sensors and control modules, causing intermittent system faults and downtime. The company's existing rubber rollers couldn't dissipate static safely and lacked the wear strength required for continuous 24/7 operation.

## THE SOLUTION

MPC engineered a custom conductive Durethane® roller formulation tuned to a resistivity range of  $10^6$ – $10^8$  ohm-cm to safely dissipate charge without sparking or interfering with electronics. Each roller was designed with a 75A hardness for balanced traction and longevity, bonded to precision-machined aluminum cores, and finished with a controlled surface profile for smooth, consistent rotation. This design provided a roller that combined conductivity, dimensional stability, and long-term wear resistance.

## THE RESULT

After three months of fleet testing, the customer recorded a 70% reduction in ESD-related faults and a 2.5× improvement in roller life compared to their previous design. Traction consistency across multiple floor types also improved significantly. As a result, the OEM standardized MPC's conductive rollers across its entire AMR platform — achieving higher uptime, fewer maintenance cycles, and measurable gains in overall system reliability.

### MARKET

Industrial

AMR and Warehouse Automation

### SOLUTION

Media Handling

Static Dissipation

Motion Transfer & Rolling

### PRODUCT

Polyurethane Rollers

### TECHNICAL SPECIFICATIONS

#### MATERIAL

Conductive Polyurethane

#### VOLUME RESISTIVITY

$10^6$ – $10^8$  ohm-cm

#### PROCESS

Cast molding, precision machining

#### COMPONENT

Roller on machined aluminum core

**70%**

FEWER ESD-RELATED FAULTS

**2.5×**

IMPROVEMENT IN ROLLER LIFE

**75A**

DUROMETER, CONDUCTIVE DURETHANE®

**Tell us what you're working on.**

One partner — from concept to production — for performance that can't stop.

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