

CASE STUDY



2026 Award of Distinction in the Hardware/Appliances category for MIM components

Hinge Upper Cam

Process:

Metal Injection Molding (MIM)

Material:

MIM-17-4 PH stainless steel

Position tolerance:

0.3 mm to base datum

Validated life:

> 74,000 cycles

End Use and Function

The hinge upper cam engages a damping mechanism that prevents a supermarket refrigerator door from slamming after opening.

Fabrication

A two-cavity mold uses an outer-perimeter sub-gate. Custom setters keep the legs sufficiently straight during sintering, and a sizing operation corrects residual warpage. Final gauging verifies the leg position relative to the base datum.

Results

The MIM component delivers a superior surface finish and exceeded 74,000 cycles without failure, compared with catastrophic failure at 40,000 cycles for cast prototypes. The process provides a durable and aesthetically suitable production solution.



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