

Process, Assembly & Enabling Technologies



Ultrahigh-Durability Pneumatic Bladder



OEM/Vehicle

**2010MY Ford Motor Co.: Ford®
Taurus® Sedan**

System Supplier

L&P Automotive Group

Material Processor

L&P Automotive Juarez

Material Supplier

Nike

Resin

PUR

Tooling/Equipment Supplier

Stellar

Pneumatic bladders in seating help increase passenger comfort, but a desire to meet ultrahigh-durability requirements necessitated development of a method to correlate radio-frequency input factors, weld geometry, and the life cycle of the bladder. Using DOE methodology and a 3-factor interaction, a predictive equation was developed to accurately model the RF-weld process and predict bladder durability. New RF-welding requirements were established that differed significantly from benchmarked standards, yet allowed for consistent, maximized weld strength. Weld failures during ultrahigh-durability testing have now been reduced from 80% to 0%.