



Magna FreeForm Seat Technology: A Designer's Dream

We've come a long way since basic bench seats were commonplace in many cars and trucks.

Automotive seat design has become a crucial consideration for automakers as consumers spend more time in their vehicles, and as interior comfort and appointments become a major competitive battleground.

Today, seating is a critical touchpoint for consumers who want their vehicle's cabin to feel as cozy as their living room. At the same time, every automaker is striving to put a special "signature" on seats, one that conveys their distinct brand values.

That message can be transmitted the moment a prospective buyer opens the driver's side door with Magna FreeForm, an innovative seat trim cover technique that is putting seat design on a par with exterior design.

Styling Flexibility

FreeForm is just what its name suggests: the freedom to achieve endless design possibilities with various shapes and crisp styling lines for striking visual effects.

As a high-pressure industrial press molds a FreeForm seat trim cover in a research lab at Magna Seating headquarters in Novi, Michigan, Eric Kozlowski explains the multiple benefits of the technology.

"It's a great way to differentiate seats," said Kozlowski, the Magna chief engineer who is responsible for complete seat system advanced research and development. "You can do any kind of shape or form. Designers see this and say, 'But they told me this was impossible!' It's not with FreeForm."

FreeForm is a designer's dream because it achieves design details as sharp as 3-4mm radii compared to 20-25mm for traditional cut-and-sew methods.

Sculptural seats that provide "eye candy" are only the beginning.

Quality and Comfort Benefits

"You also get improved production consistency, craftsmanship, high quality and improved comfort with FreeForm," Kozlowski said.

Magna's new patent-pending technology offers improved seat back comfort with highly concave surfaces and contours that hug the human shape. The sculpted, seamless surface offers more than 4 inches of concavity, resulting in added passenger comfort. Back panels have a "soft touch," with better rear seat knee clearance.

Seats are easier to clean due to the simple construction of the seamless surface and a zipper feature. This enables ride-sharing fleets to easily clean and swap out seat covers during daily routine maintenance.

FreeForm adds to the seat comfort factor with up to more than 4 times the breathability of other molded trim technologies. Because FreeForm uses hidden tie-downs, traditional trim attachment methods, which can add up to nearly 80 components in a traditional cut-and-sew trim cover, are eliminated.

Manufacturing Advantages

From a manufacturing perspective, limited and flexible capital requirements make FreeForm applicable to large-scale global programs. The technology also cuts down on scrap. It's perfect for mid-cycle trim changes and limited edition models because the base seat pad remains the same, but a new cover can be easily added for differentiation.

FreeForm technology can be used on leather, cloth or vinyl.

As the FreeForm product emerges from the press in lab, Kozlowski holds it up and admires the curvy lines that give the seat back a custom look and feel.

"This technology has great potential," he said. "You could meld it together with other technology, such as LEDs to make illuminated seats. Consumers are going to love it."

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