



Ford still uses ordinary tape in the design process.

Ford Sticks with Tape in Design Process

Today's cars are designed using state-of-the-art computers, but that doesn't mean there isn't room for something as low-tech as ordinary tape.

Ford designers rely on the tape to hone the styling of new vehicles.

The design process of a vehicle is a long and artistic journey that begins with designers sketching ideas on paper, said Ford spokesperson Francesca Montini.

From there, the team moves to scaled-down clay models and 3D CAD drawings, eventually milling full-size clay vehicles to analyze body styling options.

Clay is the ideal material for vehicle models as it allows the modelers to carve away or add lines and accents. Ford designers refine the surface language to make a vehicle that is appealing to customers, Montini said.

As clay prototypes of new vehicles are created, designers take tape to the malleable material to show modelers the lines they want perfected on the car. Designers and modelers use tape this way to communicate with each other throughout the design process of all Ford cars and trucks.

"Great design is about proportions," said Kemal Curic, Ford Exterior Design manager. "From the beginning, we need to focus on creating the right structural lines – the skeleton of the car. Then our job is to tailor the vehicle body to enhance the figure.

"This is a process of editing every single line to find the perfect balance of concave and convex angles. We achieve this on the clay model, and tape is what we use to decide which lines to move."

For vehicle designers, tape is its own language, Curic said. Even with modern 3D digital imaging, automakers still rely on clay to sculpt and mold vehicles as the design develops. Tape brings a measure of precision to a process that results in a life-size 3D visual that cannot be duplicated on a computer

screen, complementing the digital process.

"Tape gives us a defined line that is like a carpenter laying a level line on a building," said Larry Pelowski, Ford master modeler, Exterior Design. "So when the designers put tape on the model, there is no question what their intent is."

Tape offers both precision and artistry unmatched by other tools, said Pelowski. It is a flexible material that can be retaped over and over again until the designers find the line they want to pursue.

A tape line maintains the integrity of the width of the line; this is especially important when drawing a line with an arch that might otherwise be difficult to keep at a consistent size.

Artistry with tape is not a new phenomenon, said Garen Nicoghosian, Ford Exterior Design manager. Auto designers once drew entire vehicles with the malleable adhesive.

"Tape was the medium of choice for creating life-size drawings," Nicoghosian said. "They'd stretch Mylar on large boards and do a full-size tape drawing, which captured the essence of the car."

"The idea of tape drawings has evolved over time; we've integrated digital media now, and have technology that allows us to view full-size models based on CAD data, on very large display screens. In the past, tape was used because it was the first opportunity to see a full-size vehicle – it was the best way to draw accurate lines on a 1:1 scale.

"Today, the artistry of tape continues, but we use it primarily on clay models."

How much tape does Ford use every year? Plenty, said Montini. If one were to stretch the black tape used on clay models by the Ford design team in one year, she said, it would reach from Dearborn to Grand Rapids – or 155 miles.

VW Workers Vote This Week On UAW Representation

By ERIK SCHELZIG
Associated Press

NASHVILLE, Tenn. (AP) – Two of the more vocal Republican critics of efforts to unionize the Volkswagen assembly plant in Tennessee are taking opposing approaches to a pending vote over United Auto Workers representation next week.

U.S. Sen. Bob Corker, who last year declared that the German automaker would become a "laughingstock" if it opened its doors to the UAW, has announced he won't weigh in until after the three-day vote this week.

"While the decision is in the hands of the employees, I do not think it is appropriate for me to make additional public comment," Corker said after the vote was announced.

But Tennessee Gov. Bill Haslam isn't dialing back his heavy criticism of the UAW possibly winning representation of workers at its first foreign automaker in the South.

The governor this week sent a letter to the CEO of the Volkswagen plant in Chattanooga raising questions about the union election process and about whether the result will be accepted by workers and the community.

The letter released at the request of The Associated Press urges the company to change its policy of allowing the UAW to campaign in the factory, but not outside groups opposing the union.

"This distinction favoring the UAW at the expense of employees opposed to union representation is of concern to us," Haslam said in the letter last week addressed to Frank Fischer, the head of the Chattanooga plant.

Haslam said "many will differ on the advisability of union representation," but argued that the company should strive for fairness.

"The manner in which the company administers and oversees the process is critical not only to the company, but also to the general perception and acceptance of any result by the employees and community in which they live and work," he said.

Haslam said after a speech to the Tennessee Press Association last week that a union win at Volkswagen would hurt the state's ability to attract suppliers and other future business.

"We're just saying the same things we've always said – that the state has a vested interest in this," he said.

"From our viewpoint, from what we're hearing from other companies, it matters what happens in that vote."

Volkswagen, which has declared its neutrality over the outcome of the organization effort, has asked the National Labor Re-

lations Board to conduct a vote this week.

German law gives labor representatives half the seats on the Volkswagen's supervisory board, where some members have raised concerns about the Chattanooga plant being alone among the company's large factories without formal labor representation.

The UAW vote would be the first step toward creating a German-style "works council" at the plant which represents both blue and white collar employees on issues such as working conditions and plant efficiency, but not wages or benefits.

Under Tennessee law, workers would not have to join the union to be represented.

Volkswagen announced earlier this year that a new SUV model will be built either in Chattanooga or in Mexico.

Haslam said that decision could be influenced by the UAW vote.

"They have been hammering us, saying the cost differential to build that in Chattanooga is too great, and we've got to find a way to narrow that cost," Haslam said.

"Every economic study I've been shown says if the plant unionizes it will not lower the cost to produce a vehicle there," he said.

The governor said he turns back questions about why the state is getting involved in the internal labor politics of a business.

"I think it is our business in the state of Tennessee," he said.

"The state of Tennessee put a whole lot of money in that plant."

Feds Nail Bridgestone for Price-Fixing

WASHINGTON (AP) – Bridgestone Corp. has agreed to plead guilty in a price-fixing conspiracy and pay a \$425 million criminal fine in a Justice Department probe that has swept the automotive parts industry.

Twenty-six companies, including Tokyo-based Bridgestone, have pleaded guilty or agreed to plead guilty in the Justice Department's ongoing probe into price fixing and bid rigging. The companies have agreed to pay more than \$2 billion in criminal fines. Twenty-eight people have been charged, as well.

According to a one-count felony charge in federal court in Toledo, Ohio, Bridgestone partic-

ipated in allocating sales, rigging bids and raising prices of automotive anti-vibration rubber parts sold to car manufacturers in the U.S. and elsewhere.

Bridgestone sold the parts to Toyota Motor Corp., Nissan Motor Corp., Fuji Heavy Industries Ltd., Suzuki Motor Corp. and Isuzu Motors Ltd., and some of their subsidiaries and suppliers.

The Justice Department says Bridgestone has agreed to cooperate with the government's auto parts investigations. The plea agreement is subject to court approval. Bridgestone's role in the price-fixing on the rubber parts ran from 2001 to at least 2008, the government said.

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