

Quality Is Job One: Ford Motor Company



Ford used Minitab Statistical Software to minimize vehicle surface defects during ocean transport.

KEY FACTS

ORGANIZATION

Ford Motor Company

OVERVIEW

- More than 240,000 employees worldwide
- Makes and sells autos across six continents

QUALITY CHALLENGE

- Surface damage in exported vehicles
- Identify causes and eliminate damage

PRODUCTS USED

Minitab® Statistical Software

RESULTS

- Defects reduced from nearly three to about one per vehicle
- Freed up approximately 4,500 square feet of manufacturing space
- More than \$500,000 in cost savings

Ford Motor Company, a global automotive industry leader based in Dearborn, Michigan, manufactures and distributes automobiles in 200 markets across six continents. With more than 240,000 employees and 108 plants worldwide, the company's core and affiliated automotive brands include Aston Martin, Ford, Jaguar, Land Rover, Lincoln, Mazda, Mercury and Volvo.

Ford's quality engineers continually implement Six Sigma programs designed to reduce waste, defects and costs while ensuring the highest quality products and services for their customers—and Ford's engineers rely on Minitab Statistical Software to support their Six Sigma programs.

Challenge

As a worldwide manufacturer, Ford regularly builds automobiles in one country and ships them to be distributed in others. When Ford discovered that some exported vehicles were arriving overseas with exterior surface defects, the company launched a Six Sigma project team to tackle the problem.

The cause of the problem was related to Ford's use of a transit protection film applied at plants. During transportation from plant to shipping port, the film was lifting away and trapping dirt and debris.

How Minitab Helped

The Six Sigma team identified root causes including the quality of the material, installation instructions and operator training and supervision.

The team used Minitab Statistical Software to compare the performance of different transit films, and through the analysis, was able to select a better quality product. Not only did the new material decrease the defect rate, but it was also less expensive.

Minitab was also used to demonstrate that operator training, supervision and improved installation instructions could have a positive impact on defect rates.

Results

Minitab's Design of Experiments capabilities helped the Ford team see how the three critical factors interacted and provided the engineers with information needed to make significant process improvements.

By using the new film material in combination with improved training, increased supervision and better operator instructions, the team was able to reduce defects from almost three per vehicle to slightly more than one defect per vehicle.

The team also discovered that, during domestic transportation of the vehicles, an etch-resistant coating applied to vehicle exteriors provided sufficient protection against surface damage. Transit film was only needed for ocean transport.

On the team's recommendation, the transit film application process was moved from the plant to the port, freeing up 4,500 square feet of manufacturing space. The result for this Six Sigma project was a cost savings of more than \$500,000.