

## Die-cut Paint Masking Solution for Molded Spoiler

### CUSTOMER

Plastic injection molder and painter of automotive body parts

### PART

Custom paint mask for the spoiler of an automobile sport version

### MATERIAL

3M™ High Performance Green Masking Tape 401+

### MARIAN ADVANTAGE

Die-cutting expertise; ability to quickly engineer and deliver rapid prototypes; thorough understanding of customer's masking performance requirements



Molded spoiler - left half with hand-cut masking strips, right half with die-cut 3M™ 401+

### CHALLENGE

The customer was masking a large section of the bottom side of their plastic injection molded spoilers to prevent paint from contaminating the surface during the painting and baking processes. Sharp paint lines were critical. No paint bleed-through onto the masked surface was permissible.

After painting, the spoilers passed through a dry-air bake oven for sixty minutes at temperatures ranging from 80° to 180° F. After drying the tape was removed and adhesive residue was not permissible.

The customer was using 1" and 2" wide rolls of 3M 2364 masking tape in hand-cut strips to mask the area that needed protection. This method was unacceptably slow and open to variation in results. The paint line manager set a target to improve productivity by 50% or more.

### SOLUTION

Working together with Marian, 3M recommended a change to 3M™ High Performance Green Masking Tape 401+. This new tape exhibits improved adhesion initially and through the bake cycle, removes cleanly and provides sharp, well defined paint lines.

Marian engineers recommended the part geometry for the die-cut masks and the use of split butterfly liners so application would be quick and easy. Marian provided precision cut prototypes of these parts within 48 hours. Upon testing, the prototypes satisfied all the customer's material and productivity requirements. Successful testing provided the customer with the necessary confidence to approve the project.

### CUSTOMER BENEFITS

#### Significantly faster

Early trials by the customer revealed that the application and removal of the die-cut mask took less than half the amount of time of applying and removing strips of masking tape from rolls.

#### Reduced rework + scrap

3M™ 401+ masking tape eliminated rejections caused by peeling (tape lifting) and paint bleed-through. With the precise die-cut geometry of the mask, rejections caused by misalignment or insufficient wetting out of the tape were also eliminated.

#### Safer process

Die-cut parts eliminated the need for sharp blades that were used to hand-cut strips of masking tape from rolls.

#### Increased employee morale

Employees on the paint line reported feelings of pride and satisfaction with the increase in productivity and improved consistency in product quality.

***“Although a precision die-cut mask with a protective liner on the adhesive side is more expensive than the equivalent amount of tape on rolls, the improvements in process speed, rework, scrap and safety more than compensated for the increased material cost. Overall costs of our paint operation were reduced more than 15%.” – Paint line manager***