



**Case Study:**  
SECURITY  
DEVICE FOR  
RETAIL

## Introduction

Theft of soft merchandise is a major concern for all retailers. To prevent such occurrences a security device was designed specifically suited for apparel. The device was made of clear plastic, consisting of a flexible pouch containing an electric circuit. If the pouch is not detached at the time of purchase it would activate an alarm when passing a detection device located at the store exit. Testing of prototypes proved the unit to be successful.

100% reliability was key to retailers purchasing the device, and could be easily measured from quarterly theft data compiled at each retail location.



**Michael Tucci,**  
CEO and President

## Micro in Action

Micro Innovation Engineers developed a Photo Sensing System in lieu of safety probes to detect any progression errors. This system sensed the pilot hole locations with light. If the light ray was broken by being unable to pass through the hole, the power press was automatically disengaged. This prevented damage to the tooling due to a mis-feed of the aluminium material.

## The challenges we overcame

The product challenge was found in the ability to manufacture the device at a cost effective price. This was hampered by the Device Manufacturer being unable to find a stamping supplier able to effectively produce the lead frame, or carrier to which the electric circuit is bonded. Current carrying, spacing, and flexibility requirements mandated the carrier material be .002" thick aluminium 1100, having an ultimate tensile strength 14,000 to 19,000 PSI.

Stamping manufactures had the challenge of feeding the material at high speed, with the material being essentially soft aluminium foil similar to what is used to package sandwiches. The material would buckle as is it was introduced to

the progressive die. Also, safety probes that normally shut down the press when the strip is fed out of progression ceased to work and this became a particularly difficult issue. Using the normal safety probe system would result in the probe pins piercing the soft material and preventing the deactivation of the press.

Micro modified standard air feed equipment to enable high speed feeding of the soft Aluminium (at a rate of 300 press strokes per minute). The modification included narrow machined channels for the material to enter the die, all but eliminating any buckling of the soft .002" thick Aluminium.

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Micro was able to provide 100% defect free product at a price commensurate with the total cost of the security device.

For any material that might buckle more than .001 inch, buckling detectors were added to the

progressive die entrance which would shut the press down in the event of such an occurrence.

A quick spool changing system was developed as well for ease of changing completed spools to empty spools without the need to shut down the press.

## The outcome

Micro was able to provide 100% defect free product at a price commensurate with the total cost of the security device, and able to meet all delivery requirements.

The Micro solution was so substantially beneficial that the customer awarded us a second \$75,000 progressive die to support over 90% of their requirements. This left several competitors to share the remaining 10% in order to avoid having only a single source for this product.





### Contact us today

Every innovated solution is backed by the uncompromising pursuit of excellence at every phase of our manufacturing process.

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