

**TELESIS**  
TECHNOLOGIES, INC.

Industrial Identification/  
Traceability Equipment

## TMP6000 MARKS AIR BAG MODULES

Quality assurance and traceability are very important issues for makers of safety equipment, especially for automobiles. Today, the automotive industry demands that many parts have unique, permanent, identifying numbers to ensure traceability. Allied Signal manufactures air bag modules for many auto makers at their plants in Maryville, Tennessee and Callefero, Italy. Each module must receive a permanent mark before leaving production.

As part of their manufacturing process, Allied Signal applies bar code labels with serial numbers to the modules. Because labels can be easily damaged or even separated from the piece, they do not provide the permanent product identification demanded by the auto industry. Duplicate numbers and unreadable bar codes are also potential problems. Allied Signal needed a way to permanently mark their airbag modules without

duplicating serial numbers.

The TELESIS TECHNOLOGIES Applications Engineering Team suggested the PINSTAMP®

TMP6000 Single-Pin Marking System for the driver-side and passenger-side air bag

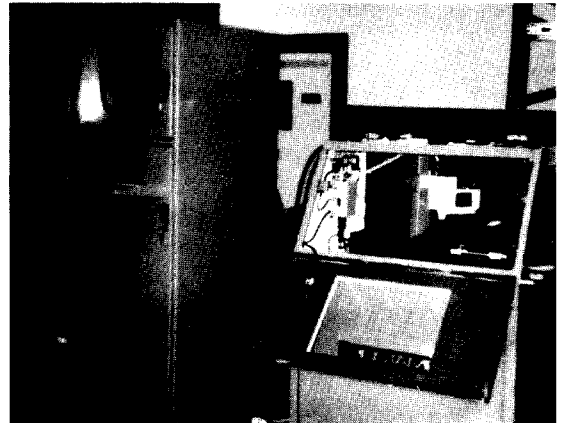


LEFT: TMP6000 inside the sound-deadening enclosure.

module manufacturing lines at both plants.

The air bag modules are already assembled when they are marked on the sheet metal framework. The framework, approximately 6" x 6" (152 x 152 mm), is stamped from sheet steel and has perforations and convolutions to accommodate the air bag and inflator mechanism. Fourteen 0.125" (3.12 mm), high characters are marked on the framework in 10 seconds. The marking area is 1.25" (31.2 mm) wide.

The markers, along with customized nesting fixtures for positioning the air bag modules, and fixed-position bar code scanners reside in sound-deadening enclosures. The nesting



LEFT: NEMA enclosure protects computer controller. RIGHT: Custom designed nesting fixtures house TMP6000 Marking Systems in both Callefero, Italy and Maryville, TN..

fixture pneumatically clamps the module into position so that the bar code scanner can read the label and the module cannot move during marking. Custom-designed software interfaces with the bar code scanner and the production computer.

*The following sequence describes the operation of Allied's custom air bag marking system.*

- When an airbag module arrives at the marking station, the operator opens the sound enclosure and places the part in the nest.
- The validation and marking cycle begins when the door is closed.
- An optical beam "part present" sensor confirms that a module is in place.
- The pneumatic clamping mechanism is activated.
- The fixed position scanner reads the bar code label attached to the side of the module and sends the serial output to the TELESIS computer.
- The Telesis computer then sends the scanned number to the production computer.
- The production computer checks the serial number against all previously marked numbers to prevent duplicate numbering.
- If the number is valid, the production computer returns a "go" signal to the TELESIS computer, allowing the marking cycle to proceed.
- Fourteen 0.125" (3.12mm) high characters are marked in 10 seconds in a 1.25" (31.2mm) wide area.
- The operator removes the module and sends it to the next manufacturing operation.
- If the number is a duplicate of a previously marked module, or otherwise invalid, a "no go" signal is sent to the TELESIS computer.
- The marking cycle is then aborted and a message appears in red on the green background of the operator console display.
- Seeing this alert, the operator removes the unmarked module and places it in the re-work bin.

TELESIS' Applications Engineering Team worked with Allied Signal to provide a solution to their unique marking needs. The new marking system gives Allied the product traceability and production tracking necessary to satisfy all of their automotive industry customers.

No. 15 9/95