

# FLEX-PLI

## Aluminum Energy Absorber for dynamic inverse test



[www.ct-sim.com](http://www.ct-sim.com)

### GLOBAL DESCRIPTION

The pedestrian lower leg form impactor is used to evaluate pedestrian protection afforded by passenger cars in case of vehicle collision with a pedestrian. The Japan Automobile Manufacturers Association, Inc. (JAMA) and the Japan Automobile Research Institute (JARI) initiated development of the "Flexible Pedestrian Leg form Impactor (Flex-PLI)" as a completely new leg form. Flex-PLI is part of the draft Global Technical Regulation (GTR).

From February 2014, the Pedestrian Protection Safety Assessment by Euro NCAP is executed by using the Flexible Pedestrian Legform Impactor (Flex-PLI). Certification of the FLEX-PLI-GTR requires nine different procedures to ensure certified performance of all components. Also, after 30 car tests or before homologation testing, a dynamic inverse test must be carried out using Aluminum Honeycomb energy absorber.

### TECHNICAL DESCRIPTION

Individual energy absorber - Aluminum honeycomb:

- Alloy 5052 Series
- Cell size 3/16 Inch
- Density 2.0 pcf
- Equivalent 75 Psi +/-10

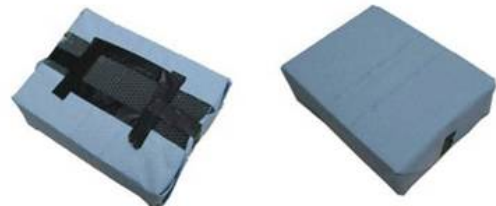
Final Dimension (as requested for testing):

- W 200 mm +/- 5 mm
- L 160 mm +/- 5 mm
- T 60 mm +/- 2 mm
- Included 10 mm pre-crushed

The leg is struck with an 8.1 kg linear guided impactor with a honeycomb face fired at 11.1 m/s (40 Kph) the same speed as the car test. The "Flex-PLI" energy absorbers are supplied as pre-cut blocks according to the testing requirements.



Energy Absorber - Post impact



Energy Absorber - Before impact

Other references upon request:

- Alloy 5052 Series - Cell size 3/16 Inch - Density 3.1 pcf
- Alloy 5052 Series - Cell size 1/4 Inch - Density 2.3 pcf

### QUALITY INSURANCE

The blocks are defined to ensure consistent and good level of repeatability with high quality. Aluminum Honeycomb products are designed and manufactured according to the ISO 9001 (V2008) standard.



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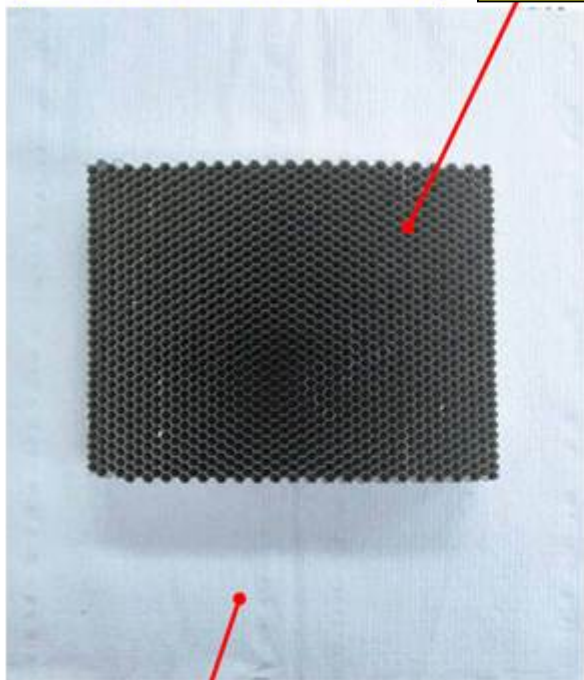


### WRAPPING

The blue paper sheet is used to cover the Honeycomb during the inverse test. The honeycomb block is covered with paper cloth of less than 1mm thick (See pictures below). The paper cloth is wrapped around the honeycomb and taped at the back to hold in position. The paper helps to prevent damage to the leg covers.

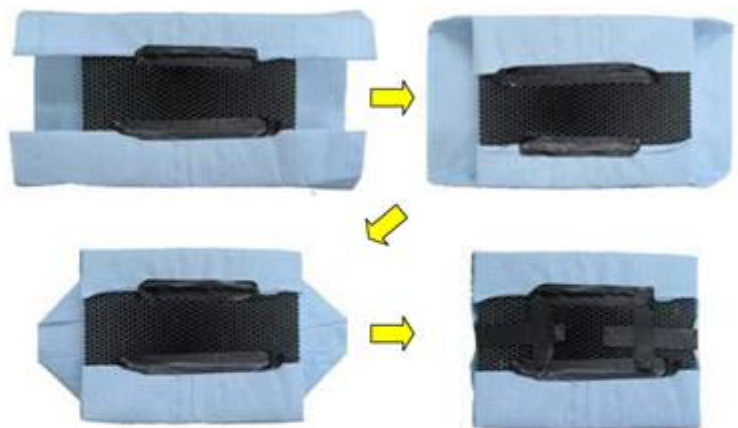
**Test Equipments**  
Inverse Test: Honeycomb

**Honeycomb Absorber with 10mm pre crushed**  
Width 200 x Height 160 x Thickness 60



Blue Paper Sheet to Cover the Honeycomb

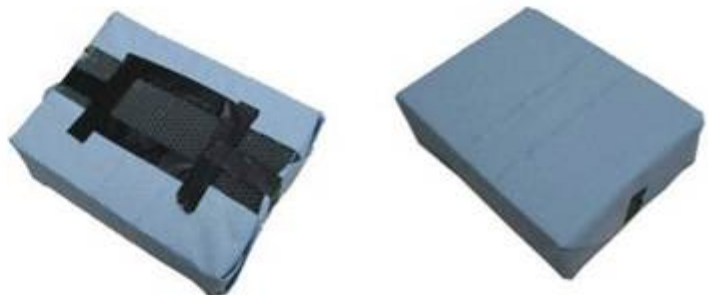
How to hold the blue paper



Outlook

Back side

Front/Impact side



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### ABSORBER AFTER INVERSE TEST

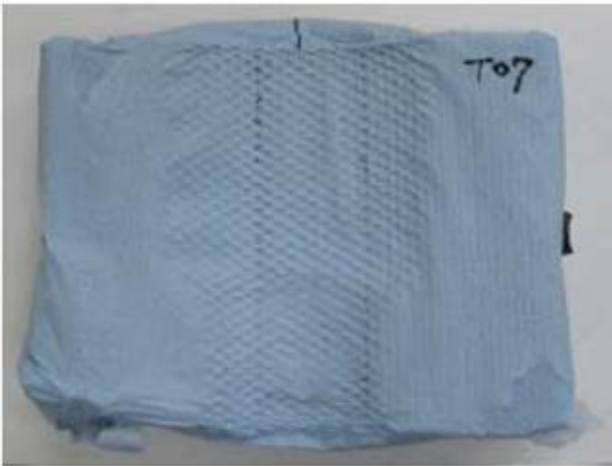
#### Test Equipments

#### Inverse Test: Honeycomb Deformation

#### After the Inverse Test example

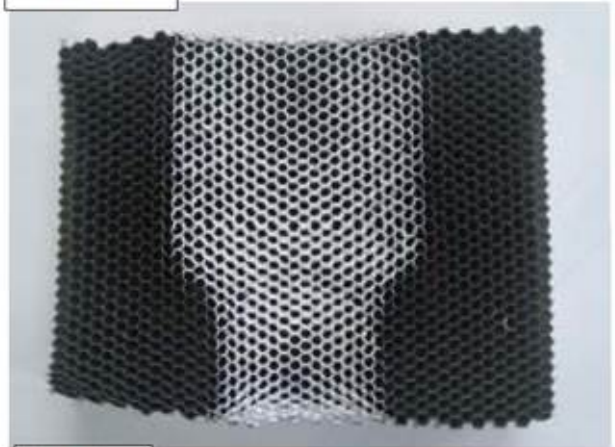
With blue paper sheet

Frontal view



Without blue paper sheet

Frontal view



Top view



Top-Frontal view

