



# IMPACTING ON SAFETY



CELLBOND

# ABOUT US

Cellbond are an innovative provider of passive safety testing solutions and equipment within the automotive sector. Our customer focus, technological leadership and manufacturing efficiencies have set the standard for automotive passive safety testing worldwide.

A market-leader in the design and manufacture of engineered composite structures for impact absorption testing, Cellbond provide world renowned automotive manufacturers and test facilities with the products and expertise needed to evaluate and improve vehicle safety testing. Our extensive portfolio of products and services include energy absorbers, crash test barriers, crash test dummies and a highly skilled Research & Development team.

At the heart of Cellbond's DNA is the customer. We listen to our customers, share ideas, understand their needs and then focus on delivering our promises. We forge and maintain relationships often over long timescales, offering a flexible working approach and reacting to ever changing requirements. Our customer-centric, multi-lingual team of industry experts deliver a high level of personal service, employing lean manufacturing principles throughout to guarantee quality, cost-effective products delivered on time.

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# OUR STORY SO FAR

From humble beginnings in 1988, Cellbond have grown to become a proven brand leader. Over the years we have demonstrated innovative thinking around our product portfolio and have introduced new technologies in close collaboration with our customers.

Cellbond's continued future focused approach to product innovation has seen our global footprint rapidly expand. We export over 80% of our products worldwide through an established and reliable logistics network and are represented in 9 countries across 3 continents.



**1989**  
Honeycomb core calibration with MIRA in the United Kingdom.



**1990-1993**  
Development of the EEVC Frontal Offset Barrier with TRL and EEVC WG11.

**1995**  
Multi 2000 - A solid multilayer side impact barrier, the Multi 2000 was developed by Cellbond and EEVC.

**1997**  
Moving Side Impact Trolleys - Trolleys are made according to ECE R95, FMVSS214, FMVSS301, and later for the AE-MDB.

**1999**  
HBEP, now A&G Technology becomes Cellbond's distributor in Korea.

**2000-2001**  
IIHS Side Impact Barrier - IIHS Side Impact Barrier developed by Cellbond on behalf of the Insurance Institute for Highway Safety to represent an SUV.

**2001-2012**  
Development of the AE-MDB (Advanced European - Mobile Deformable Barrier) for side impact together with EEVC WG13/IHRA and later Aproslys and EuroNCAP.

**2002**  
Cellbond recruit a distributor in China now called Welly/BFB (Beijing Forever Brightness).

**2006**  
Launch of Cellbond FE Barrier Models in LS-Dyna.

**2010-2013**  
Cellbond develop on behalf of NHTSA a research mobile deformable barrier for frontal oblique/small overlap testing.

**1996**  
Development of the ADAC compatibility frontal offset barrier with ADAC to simulate multi-stage crash behaviour.

**1998**  
Advanced-2000 Side Impact Barrier- Cellbond were the first to introduce this barrier type using a process of differential etchin aluminium honeycomb.

**1999**  
Cellbond Inc. is incorporated in the USA, setting up an office and warehouse.

**2001-2003**  
Development of the Full-Width Compatibility Barrier on behalf of TRL.

**2002**  
Cellbond recruit a distributor in China now called Welly/BFB (Beijing Forever Brightness).

**2006**  
Launch of Cellbond FE Barrier Models in LS-Dyna.

**2008**  
Knee Ligaments for the pedestrian lower legform are manufactured to extremely tight tolerances.

**2011**  
Headforms comply with GTR and European requirements and are used to assess the performance of car bonnets in regards to pedestrian safety.

**2012**  
Cellbond appoint THAG as a distributor in Malaysia.

**2014**  
Cellbond establish their own office in Japan, Cellbond KK.

**2014 onwards**  
Cellbond officially announce that they will be developing and making their own crash test dummy parts in the near future. The highly sophisticated and calibrated dummies are designed to correlate closely with the human body. The addition of the anthropomorphic test devices (ATDs) to the company portfolio ensure that Cellbond maintain their position at the very forefront of the crash test industry.

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# BARRIERS

Cellbond are at the forefront of crash test barrier design and production and considered international industry specialists for over 25 years. We offer a full range of deformable aluminium honeycomb barriers and were the first company to do so.

Cellbond's deformable crash test barriers and other impactors are a crucial element used in both passive safety regulation and consumer information tests worldwide. We have worked closely with safety experts including EuroNCAP, IIHS and NHTSA in order to develop barriers that will cover a variety of regulatory standards and test protocols within Europe, the US and other countries.



## CELLBOND'S RANGE OF CURRENT CRASH TEST BARRIERS INCLUDES:

### Advanced-2000 Side Impact Barrier

Originally launched by Cellbond in 1998. Used by EuroNCAP since 2002, as well as AustraliaNCAP and CNCAP and regulations in many countries.

### AE-MDB Side Impact Barrier

Developed by Cellbond from 2001 in collaboration with various European working groups and institutions. Used in EuroNCAP testing from 2015 onwards.

### NHTSA Side and Rear Impact Barrier

NHTSA/FMVSS Barrier  
Launched in 1990, now used for regulatory testing for side impact to FMVSS 214 and rear impact to FMVSS 301.

### IIHS Side Impact Barrier

Developed by Cellbond in conjunction with IIHS and designed to represent an SUV.

### NHTSA Oblique Barrier

Frontal Oblique and small overlap testing. Developed from 2010 by Cellbond on behalf of NHTSA.

### Frontal Offset Barrier

Supplied to Euro NCAP, IIHS, AustraliaNCAP, CNCAP, LatinNCAP etc. The first barrier that Cellbond helped to develop with EEVC WG11, part of the European regulation for occupant protection since 1996.

### PDB for compatibility Testing

Progressive deformable barrier for 50% frontal offset test.

### Full Width Deformable Barrier

Developed by Cellbond on behalf of TRL for frontal compatibility testing.

As well as our extensive product portfolio, Cellbond have the skillsets required to manufacture custom designed crash test barriers. Many of our older Cellbond barrier types are also available to purchase.

#### Barrier FE Models

Cellbond have developed validated simulation models for its barriers in LS-Dyna and Radioss in collaboration with our industry partners. Model licences are distributed through ARUP and Altair.

#### Crash Test Trolleys

Moving Impact Trolleys are available from Cellbond for most deformable barriers, such as Advanced-2000, AE-MDB, FMVSS, IIHS, using in-house engineering and manufacturing facilities. Other types can also be offered and trolleys can be modified to suit customer requirements. Ventilation Devices for barriers can also be supplied separately.

# DUMMIES

Cellbond's move into the ATD or Anthropomorphic Test Device sector reinforces our extensive experience in the automotive impact testing industry. Our aim is to develop new products using our up-to-date machining and moulding capabilities to manufacture precision dummy parts. As part of the process we have developed a dummy calibration lab as an addition to our existing component test facilities.



We are currently working on the following ATDs:

- Q3 Series Dummy
- Flex PLI Pedestrian Impactor

We are also responsive to customer requirements and will develop new components as required wherever possible.

#### Headform Impactors and Ligaments

Pedestrian Headforms and Headskins are available, both as sets and individually and are built, as according to ISO, GTR 9, European Direction 2009/631 and other regulations.

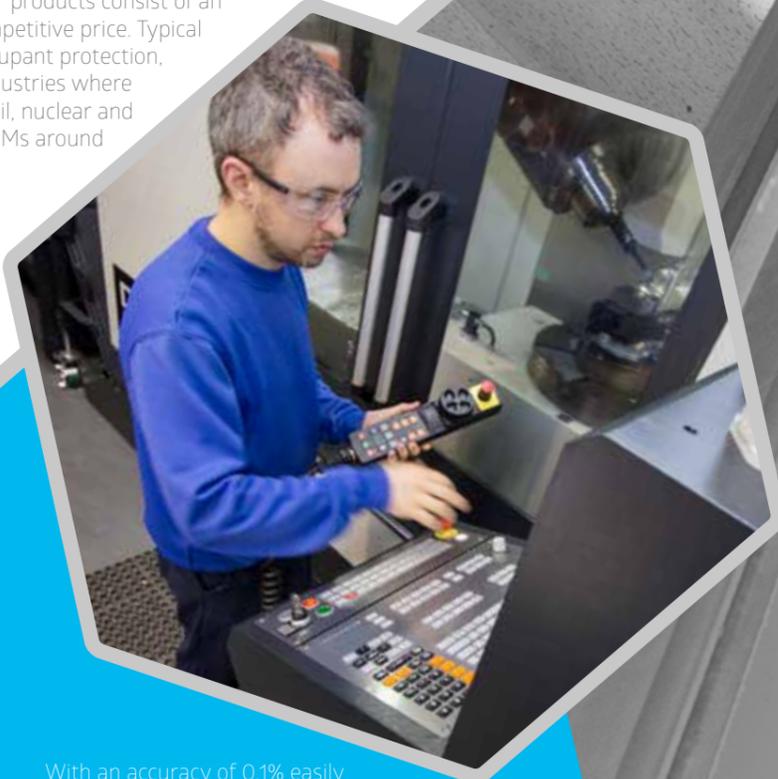
Ejection Mitigation and Free Motion Headforms as per FMVSS 226 and FMVSS 201 have been added to our product range. Headforms can be supplied with custom accelerometer mounts and accelerometers.

# OTHER CAPABILITIES

## Energy Absorbers

Cellbond develop and manufacture a range of energy absorbers. Our extensive expertise gained in the field of crash test barriers and safety testing complements the development of energy absorption solutions and vehicle based impact countermeasures.

Whether producing cost-efficient absorbers or products tailored to specific high-end demands, Cellbond can offer a variety of solutions in a range of materials including aluminium honeycomb and PressLoad. Our products consist of an excellent energy absorption to weight ratio at a competitive price. Typical automotive applications include car interiors for occupant protection, bonnets for pedestrian protection, sill, etc. Other industries where our products have been used successfully include rail, nuclear and military projects. Our experience in working with OEMs around the world makes us the ideal partner for your energy absorbing requirements.



## Dynamic and Quasi-Static Testing

Cellbond's testing facilities available include:

- Two-drop test towers
- ATD calibration lab
- Universal test machines
- Climatic chamber

These services ensure comprehensive capabilities to evaluate the performance of a large variety of impact energy absorbers. In addition they can be used to obtain material characterisation properties for use in FE modelling.

## Research and Development

With a long history in research and development, Cellbond is the ideal partner for any development project related to energy absorption. Equipped with the latest CAD/CAM and FE modelling software facilitating the following services:

- 2D/3D Design
- Laser Scanning
- 3D Models and FE Analysis
- Rapid Prototyping
- Dynamic and Quasi-Static Testing

## LSMD

Cellbond offer a highly accurate laser speed measurement device (LSMD). Originally designed by Adelaide University the product has been commercialised by Cellbond, specifically designed to satisfy the requirements of pedestrian sub-system impact testing. It is also suitable for any application requiring highly accurate speed measurement such as full scale crash tests or component sled.

With an accuracy of 0.1% easily achievable, the versatility of the system allows it to be used as part of a portable set-up using tripods or permanently fixed on an X-Z gantry (not supplied).

## Calibrated Honeycomb

Cellbond offers expanded aluminium honeycomb calibrated in order to guarantee a specific crush force. The supplied material is certified to a specified crush strength for a variety of energy absorption or system calibration applications where predictable and repeatable energy absorption characteristics are required. Our dummy necks and Flex-PLIs are examples of typical calibration applications. Various densities, honeycomb cell sizes and aluminium alloys are available which translate to a wide range of crush strengths. Calibrated honeycomb can be offered in a variety of sizes and thicknesses and/or pre-crushed depending on customer requirements.

Cellbond offers all inclusive expertise from initial design to full-scale serial production.

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