

EUROROADSAFETY

Biker-Mate..... a friend for LIFE



The Problem!

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The Problem.....

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- About **6500 bikers are killed or seriously injured** in (UK) roads every year.
- EU statistics showed **6,200 motorcyclists died in 2006**, reflecting a **death risk 18 times higher for riders than other road users**.
- Relative risk of a motorcyclist being seriously injured or killed was 54 times higher in 2006 than for car drivers.
- Collision with a fixed object is a significant factor in over half of the fatalities.
- Roadside objects such as signposts and lampposts, and barrier posts are highly hazardous for motorcyclists.
- Head injury is a leading cause of death in motorcycle crashes.

The Concept

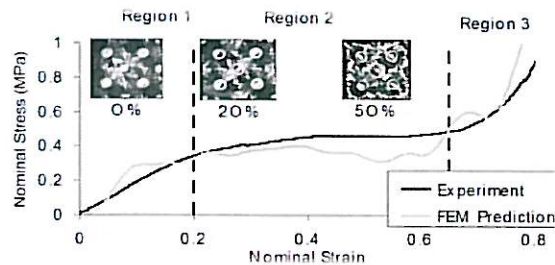
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- A modular energy absorbing structure which can be fixed to posts, rails, Lattix, lamp-posts and other roadside structures.
 - Uses a highly efficient energy absorbing material - PressLoad
 - Controls the impact, mitigating injury to the motorcyclist.

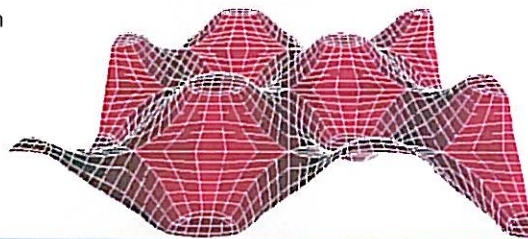


PressLoad Energy Absorbing Material

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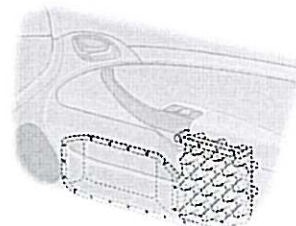


- Region 1: Plastic deformation
- Region 2: Travelling hinge
- Region 3: Densification



PressLoad Energy Absorbing Material

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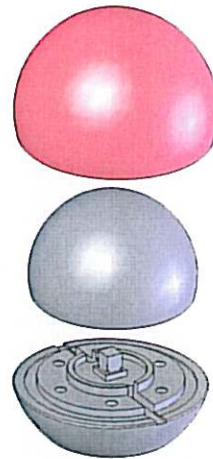


- Superior energy absorption
- Repeatable Performance
- Approx 70% Effective Stroke (stable crush phase)
- Light weight
- Excellent temperature stability
- Good Flexural Properties - Increased stiffness and resistance to vandalism

Testing and Validation

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- Developed using Automotive Safety Regulations as a guideline
- EEVC Pedestrian Headform Impactor:
 - Developed by automotive industry experts
 - Simulates an unprotected human head.
 - Instrumented device gives direct readings
 - Proven test instrumentation – years of use
- HIC (Head Impact Criteria) measures the injury severity
 - High HIC value = Poor performance



Safety Evaluation Techniques

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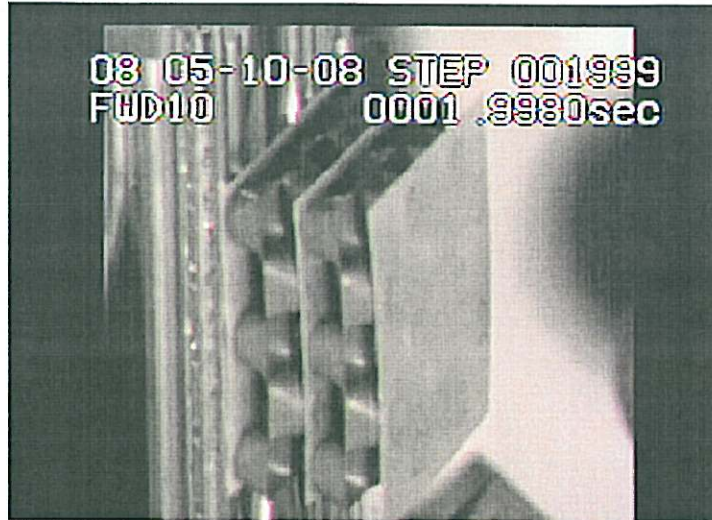


Drop test configuration for 30° and 90° impacts with an adult male dummy.



Testing and
Validation

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Testing and
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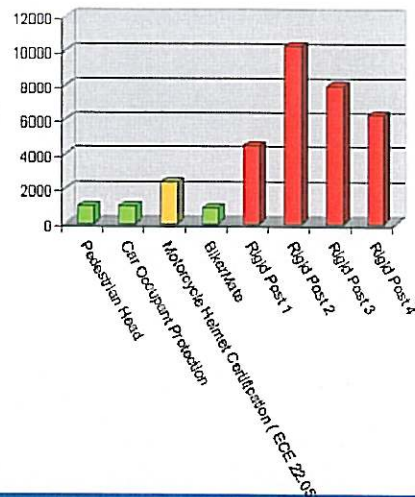
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Results - Injury Severity

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Relative HIC Values



- BikerMate HIC < 1000
- Unprotected posts showed very poor performance, very high chance of serious injury or death.
- Approximately twice as high performing as many helmets.
- Favourable performance even compared with demanding automotive standards

Results – Energy Absorption

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- 6500J (nominal) per modular Biker-Mate unit
- Equivalent to 100% absorption of a 75kg body impacting at over 45kph
- This represents a significant % of impact energy expected for most accidents – based on accident kinematics, rider braking, sliding prior to impact, environment and layout of accident sites.
- For higher speed impacts, the Biker Mate effectively reduces the body-post impact speed by absorbing the energy in a controlled, safe manner.

Features

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- Large radius impact face drastically reduces "piercing" effects which would be seen upon impact with an unprotected structure/ post.
- Wrap around design shields the likely impact region of the post but does not need to be installed around all sides, reducing the footprint and the cost.
- No sharp edges
- Resistant to vandalism (subjected to basic trials) – rigid, non brittle, slow melting rate, secure connection etc...

**Based on physical testing*



Features

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- Designed to fit Lattix & Round Posts
- Modular system is stackable enabling flexibility. Various height can be achieved
 - Height – 420mm nominal
 - Depth – 160mm nominal
 - Low Mass/ Weight: only 2kg nominal
- Designed to enable easy access to lamppost electric panels.
- Thin gauge casing helps with load spreading, and interaction of absorption cartridges
- Easy fit fixing system - easy to fit to either round posts or Lattix structure; but is secure and difficult to remove
- Secure non rigid connection between absorber and Lattix Mast - Maintains secure connection with minimal effect on the deformation of the Lattix structure.



Environmental Conditions

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- Chemical, water and corrosion resistant
- UV stabilized ideal for outdoor use
- Very low water absorption - waterproof
- Materials tested at -35°C / 20 °C / 80°C



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Thank you for listening, do you have any questions?

