Impact Attenuating Devices to Protect Motorcyclists from Guardrail Posts

Federal Highway Research Institute (BAST)
Post of Steel Guard Rail (Cross Section)
What Can Happen to Motorcyclists?
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Basics – Accident Data

In Germany we have about **26,000** accidents with injured motorcyclists per year.

**568** motorcyclists lose their lives each year.

In **1200** cases of all accidents with an injured motorcyclist a vehicle restraint system (VRS) was involved.

Only **2.2%** of all accidents of injured motorcyclists ends up in a fatality; but if VRS are involved the number increases to **14%**.
Motorcyclist Protection Systems (MPS) in use
Motorcyclist Protection Systems (MPS) in use

- Post Protection (SPU)
- ESP or EDSP with extra beam for underride protection
- Concrete Barrier
Motorcyclist Protection Systems (MPS) in use

- Box beam with extra beam for underride protection
Former Research

BASSt started a research project to improve the situation. The aim was the development of a system which is more „friendly“, e.g. less severe, for motorcyclists.
System Euskirchen Plus (ESP)
System Euskirchen Plus (ESP)
System Euskirchen Plus (EDSP)
### Additional Tests according to standard EN 1317

<table>
<thead>
<tr>
<th>Containment</th>
<th>Level</th>
<th>Type</th>
<th>Velocity</th>
<th>Angel</th>
<th>Mass</th>
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<td>Normal</td>
<td>N2</td>
<td>TB 32</td>
<td>110 km/h</td>
<td>20 °</td>
<td>1500 kg</td>
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<td>TB 11</td>
<td>100 km/h</td>
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</table>
Current Research

- Identification of sharp elements of VRS

- Improving systems according to new standard EN 1317-8
Summary

- VRS need to be improved for motorcyclists!
- Protection for sliding and sitting impact

Thank You for Your Attention!