QuadGuard® High-Speed (HS) System
NCHRP 350 Performance at 113 km/h (70 mph)

OVERVIEW
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cushion performance by passing the NCHRP 350, TL-3 test matrix for
directive, non-gating crash cushions at the demanding design
speed of 113 km/h (70 mph). The system features revolutionary
space-frame diaphragms that allow it to provide high-speed impact
protection for a wide range of vehicles, from small cars to high-
center-of-gravity pickup trucks.

The QuadGuard HS System is the only crash cushion in the world
tested to satisfy the stringent FHWA requirements based on NCHRP
350 criteria. During head-on impacts at speeds up to 113 km/h
(70 mph), the QuadGuard HS System telescopes, effectively
dissipating the energy of both light cars and high-center-of-gravity
pickup trucks. During impacts at angles up to 20 degrees, the system
redirects the impacting vehicle back into its original travel path.

FEATURES AND BENEFITS
- Tested using NCHRP 350 criteria at 113 km/h (70 mph).
- Shields hazards up to 914 mm (36") wide.
- Majority of components are interchangeable with standard
  QuadGuard® System.
- Provides 61-70% reusability after design impact

MEETS NCHRP 350 CRITERIA AT 113 KM/H
- Test 30 820G Small Car, 0°, offset w/4, Nose  - Waived
- Test 31 2000P Pickup, 0°, Nose  - Passed
- Test 32 820G Small Car, 15°, Nose  - Passed
- Test 33 2000P Pickup, 15°, Nose  - Passed
- Test 36 820G Small Car, 15°, CLIP  - Passed
- Test 37 2000P Pickup, 20°, CLIP  - Passed
- Test 38 2000P Pickup, 20°, CLIP  - Passed
- Test 39 2000P Pickup, 20°, Reverse Impact  - Passed

SAYING LIVES BY DESIGN

ENERGY ABSORPTION SYSTEMS, INC.
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The Space-frame Diaphragms allow the QuadGuard HS System to address both 820 kg (1800 lb) cars and high-center-of-gravity 2000 kg (4400 lb) pickup trucks during high-speed impacts. These Space-frame Diaphragms are used in the first three bays of the system, which do not contain a cartridge.

### Specifications

<table>
<thead>
<tr>
<th></th>
<th>Minimum Width at Backup</th>
<th>Maximum Width at Backup</th>
<th>Length (typical 6-bay unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>610.0 mm (2')</td>
<td>914 mm (3')</td>
<td>9.5 m (31')</td>
</tr>
</tbody>
</table>

1. Self-Supporting Nose
2. Space-frame Diaphragm (First Three Bays)
3. Standard Diaphragm
4. Replaceable Cartridge
5. Monorail Base
6. Quad-beam Panel
7. Backup