


# Safety Barrier Technical Conditions for Use

## QUADGUARD M10 Crash Cushion - Permanent

|  |  |                                       |
|--|--|---------------------------------------|
|  | <b>Issue Date:</b> 4 March 2021  | <b>Supplier:</b> Ingal Civil Products |
|  | <p><b>These conditions take precedence over any instructions in the Product Manual.</b></p> <p>This document is a summary of the Austroads Safety Barrier Assessment Panel's assessment of the technical performance of the product against AS/NZS 3845 Parts 1 or 2 only. It does not consider procurement practices by individual Road Agencies.</p> <p>The Austroads Safety Assessment Panel may at any time, withdraw or modify this Technical Conditions for Use without notice.</p> <p>These acceptance conditions should be read in conjunction with the Product Manual and Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers.</p> <p>Acceptance of this product does not place any obligation on the Northern Territory Government or its contractors, to purchase or use the product.</p> |                                       |

|                         |  |
|-------------------------|--|
| Status                  | <b>Recommended for Acceptance</b>  |
| Product accepted        | <p>QUADGUARD M10 Crash Cushion</p> <p><u>Variants</u><br/>Quadguard M Wide</p> <p>Variants that are NOT listed above are NOT recommended for acceptance.</p>   |
| Accepted Speed          | <p>70 km/h (TL2)<br/>100 km/h (TL3)</p>  |
| Product Manual reviewed | <p>PN 625877 - Rev. D Nov 2019 (Quadguard M10)<br/>PN 626824 - May 2020 (Quadguard M Wide)</p>   |
| Product Manual          | <p><a href="https://www.ingalcivil.com.au/products/road-safety-barriers/crash-cushions/quadguard-m10-mash#Manual">https://www.ingalcivil.com.au/products/road-safety-barriers/crash-cushions/quadguard-m10-mash#Manual</a></p> |

### Design Requirements

| Containment Level | Point of Redirection (m) |          | Tested Article Length (m) | Anchor/Post Spacing (m) | Notes |
|-------------------|--------------------------|----------|---------------------------|-------------------------|-------|
|                   | Leading                  | Trailing |                           |                         |       |
| MASH TL2          | Fully redirective        |          | 4.0                       | Refer to drawings       |       |
| MASH TL3          | Fully redirective        |          | 6.71                      | Refer to drawings       |       |

### Approved Connections

|   |   |
|---|---|
| <b>Crash Cushions or Terminals must be fitted to both ends of a barrier</b> |   |
| <b>Public Domain Products</b>   |   |
| W-Beam Guardrail  | Permitted - reverse impacts into the transition section can produce a greater occupant severity value than preferred. Where reverse impacts are possible (e.g. bidirectional traffic) a risk assessment must be completed and steps to mitigate the likelihood of reverse impact should be implemented. |
| Thrie-Beam Guardrail  |   |

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|                             |   |
|-----------------------------|---|
| Concrete                    | Permitted   |
| <b>Proprietary Products</b> |   |
|                             | Refer to Safety Barrier Technical Conditions for use for approved connections |

### Design Guidance

| <b>This product must be installed and maintained in accordance with the Product Manual and Road Agency specifications. Road Agency specifications and standards shall have precedence</b> |  |
|---|--|
| System length (m)   | 4.0 (Quadguard M10) (TL2)<br>6.71 (Quadguard M10 and Quadguard M Wide) (TL3)   |
| System width (m)  | 0.610 (Quadguard M10)<br>1.755 (Quadguard M Wide)  |
| Slope limit   | 8%   |
| Systems conditions  | Installation on top of a kerb is not recommended, however if installed on top of a kerb all system components must be free to operate. |
| Gore area use   | Permitted  |
| Pedestrian area use   | Permitted  |
| Cycleway use  | Permitted  |
| Frequent impact likely  | Permitted  |
| Remote location   | Permitted  |
| Median use  | Permitted  |

| <b>Foundation Pavement Conditions</b>     |               |                             |                             |  |   |
|---|---------------|-----------------------------|-----------------------------|--|---|
| <b>Pavement</b>                           | <b>Use</b>    | <b>Accepted Speed (max)</b> | <b>Post/Pin Spacing (m)</b> | <b>Post/Pin Type</b>   | <b>Pavement Construction</b>  |
| Concrete                                  | Permitted     | 100km/h                     | Refer to Drawings           | M20 x 180mm threaded rod with epoxy (Quadguard M10 & Quadguard M Wide) | Installation on concrete pavement or pad is permitted in accordance with the manufacturer's drawings (Quadguard M10 & Quadguard M Wide) |
| Deep lift asphaltic concrete              |               |                             |                             |  |   |
| Asphaltic concrete over granular pavement |               |                             |                             |  |   |
| Flush seal over granular pavement         |               |                             |                             |  |   |
| Unsealed compacted formation              | Not permitted |                             |                             |  |   |

**Note: Installation in pavement conditions not listed above have not been justified to the Panel's satisfaction.**