Safety Barrier Technical Conditions for Use

QUADGUARD Elite M10 Crash Cushion

Issue Date: 19 June 2020 | **Supplier:** Ingal Civil Products

These conditions take precedence over any instructions in the Product Manual.

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.

The Austroads Safety Assessment Panel may at any time, withdraw or modify this Technical Conditions for Use without notice.

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.

Acceptance of this product does not place any obligation on the Northern Territory Government or its contractors, to purchase or use the product.

Status	**Recommended for Acceptance**
Product accepted	QUADGUARD Elite M10 Crash Cushion Variants Variants that are NOT listed above are NOT recommended for acceptance.
Product Manual reviewed	Revision B – June 2020
Product Manual	https://webassets.valmont.com/valmontstaging/docs/librariesprovider35/manuals/quadguard-elite-m10-manual-rev-b-june-2020.pdf?sfvrsn=139ecf39_2

Design Requirements

Containment Level	Point of Redirection (m)		Tested Article Length (m)	Anchor/Post Spacing (m)	Dynamic Deflection (m)	Working Width (m)	Notes
	Leading	Trailing					
MASH TL3	Fully redirective		8.3	Refer to drawings	n/a	n/a	Self-restoring cushion. 2270P vehicle rebounded at 31.7 km/h in testing.

Approved Connections

Crash Cushions or Terminals must be fitted to both ends of a barrier	
Public Domain Products	
W-Beam Guardrail	Permitted – may only be installed where reverse impacts are highly improbable and a risk assessment has been completed and steps undertaken to mitigate any risks identified
Thrie-Beam Guardrail	Permitted – may only be installed where reverse impacts are highly improbable and a risk assessment has been completed and steps undertaken to mitigate any risks identified
Concrete Type F	Permitted
Proprietary Products	
	Refer to Safety Barrier Technical Conditions for Use for approved connections

Design Guidance

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	
Minimum installation length	8.30 metres
System width (m)	0.61 metres
Minimum distance to excavation	N/A
Slope limit	Side slope limit: (8%)
Systems conditions	1. Risk assessment of rebounding errant vehicles should be undertaken. 2. Device has demonstrated risk of stored energy - system specific training and maintenance procedures must be followed at all times. 3. Installation on top of a kerb is not recommended.
Gore area use	Permitted
Pedestrian area use	Permitted – consider potential for snagging and deflection
Cycleway use	Permitted – consider potential for snagging and deflection
Frequent impact likely	Permitted
Remote location	Permitted
Median use	Permitted

Foundation Pavement Conditions					
Pavement	**Use**	**Accepted Speed (max)**	**Post/Pin Spacing (m)**	**Post/Pin Type**	**Pavement Construction**
Concrete	Permitted	100 km/h		M20 x 180mm Gr8.8 chemical anchor	Min 28MPa and 150mm min depth
Deep lift asphaltic concrete	Permitted	100 km/h		M20 x 180mm Gr8.8 chemical anchor	Installation on reinforced concrete pad is permitted in accordance with manufacturer's drawing
Asphaltic concrete over granular pavement	Permitted	100 km/h		M20 x 180mm Gr8.8 chemical anchor	
Flush seal over granular pavement	Permitted	100 km/h		M20 x 180mm Gr8.8 chemical anchor	
Unsealed compacted formation	Permitted	100 km/h		M20 x 180mm Gr8.8 chemical anchor	

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