

SMART STEEL CRASH CUSHION

REVISION REGISTER

Revision	Description	Date
1	Issued for use.	08/11/2019.
1 A	MASH TL 2 configuration approved for use.	22/04/2020
1 B	Reverse impact conditions amended. Supplier details amended.	26/07/2022

The SMART CUSHION® is a redirective, non-gating crash attenuator that incorporates a hydraulic cylinder and piston system. Other components include steel frames and a steel cable attached to a sled assembly and routed to dual sheave assemblies. Impact energy is dissipated by a combination of friction forces between the steel cable and the sheaves, and the hydraulic cylinder and piston system

It differs from other crash attenuators that dissipate energy through the crushing of cartridges or ripping of plates.

The SMART CUSHION® crash attenuator requires the replacement of few parts after impact, so may be suitable in locations that are impacted frequently. Knowledge of the system is required to ensure that resetting of the crash attenuator after impact and maintenance are undertaken appropriately.

Images:



Photograph of SMART CUSHION ®

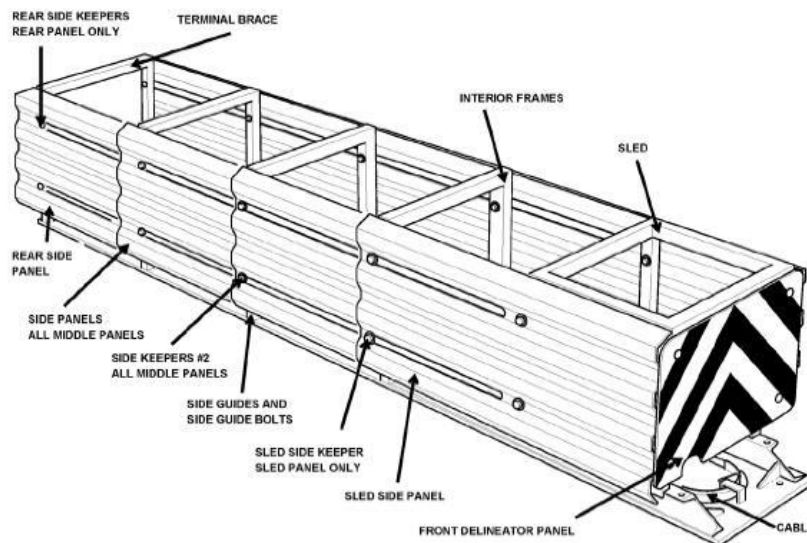


Diagram of SMART CUSHION ®

SMART STEEL CRASH CUSHION

Ownership:

Hill & Smith
987 Buckeye Park Road
Columbus OH 43207
Website: <https://hillandsmith.com/>

Supplier:

Hill & Smith Pty Ltd
t/a HS Roads
Phone: 1300-2-PROTECT
Email: Jairos.zindi@hsroads.com.au

Test Level:

Tested in accordance with MASH TL 2 & TL 3.

Test Level	Design Speed (km/h)	Model Number	System Length (mm)	System Width (mm)
MASH TL 2	70	SCI70GM	4118	879
MASH TL3	100	SCI100GM	6556	951

Configuration:

- Unit may be transitioned to Constant Slope or Type F concrete barriers.
- Unit may be transitioned to Thriebeam. Not suitable for reverse direction impacts.
- All supplied units are to have the yellow front delineator panel.

Design:

- Design to be in accordance with the SCI70GM and SCI100GM Design, Installation and Maintenance Manual (ATT2019 - 071519).
- No raised kerbs (greater than 100mm height), islands, drainage structures or any other item that can affect the height at which a vehicle could impact the unit at shall be placed 15m prior to the unit or along the length of the unit to the rear of the backup. Flush kerbing is preferred around the unit.
- SMART CUSHION® crash attenuators are 610 mm wide at the rear. Barriers 610 mm wide, or less, can be shielded without using a transition if there is no reverse direction traffic. Barriers that are wider than 610 mm and/or have reverse direction traffic require a transition, as specified by the Designer. Barriers that are wider than 914mm wide cannot be shielded.
- Upon impact, the side panels telescope towards and beyond the back of the unit by as much as 760 mm from their pre-impact position. Therefore the unit must be positioned a minimum of 760 mm forward of objects that could interfere with movement of the panels.

Limitations:

- Cannot be used on crossfalls or longitudinal grades steeper than 10%.

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- Permanent installations shall only be on concrete foundations as specified in the SCI70GM and SCI100GM Design, Installation and Maintenance Manual (ATT2019 - 071519).
- Shall only be specified at locations that are approved by the Main Roads WA Road and Traffic Engineering Branch.

Installation and Maintenance Requirements:

The end treatment shall be installed, and repaired after impact in accordance with the SCI70GM and SCI100GM Design, Installation and Maintenance Manual (ATT2019 - 071519).

Parts to be Replaced after Impact:

Refer to the SCI70GM and SCI100GM Design, Installation and Maintenance Manual (ATT2019 - 071519).

References:

Manuals

Available on the Hill & Smith website.

Relevant FHWA Approval Letters

Refer to website

https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/

Code	Description
CC-85A	NCHRP 350 TL 2 – Approval (SCI70GM)
CC-128	MASH TL 3 – Approval (SCI100GM)