

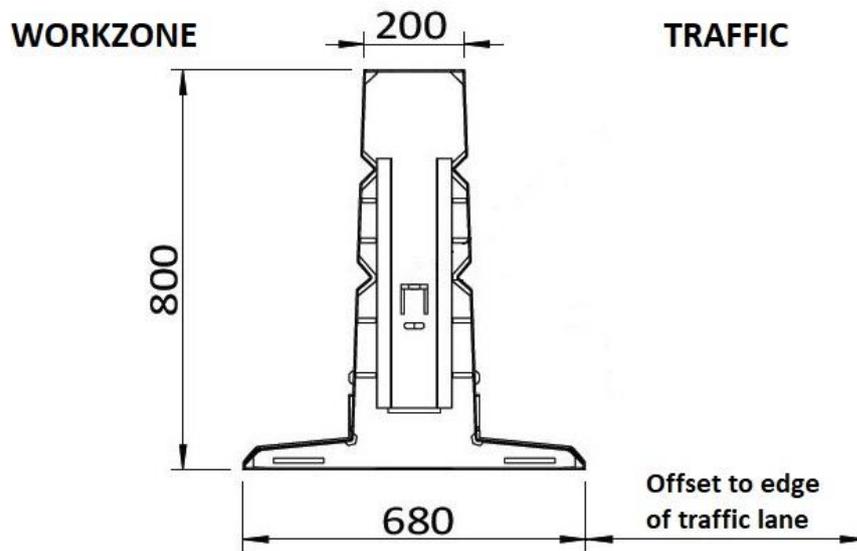
# DEFENDER 100FS

## REVISION REGISTER

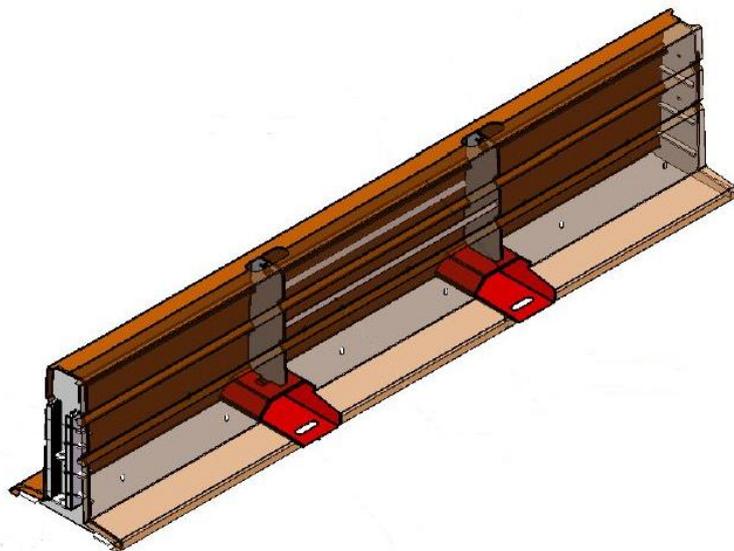
Revision	Description	Date
1	Issued for use.	08/01/2020.
1A	Terminals permitted updated. Manual updated.	9/08/2021
1B	Supplier details updated.	12/10/2022

Defender 100FS is a portable freestanding steel barrier that is to be used for temporary applications only. Each Defender 100FS barrier unit is effectively 3.9 m long and contains 3# concrete filled ballast boxes, giving each unit a mass of 1,040 kg.

### Images:

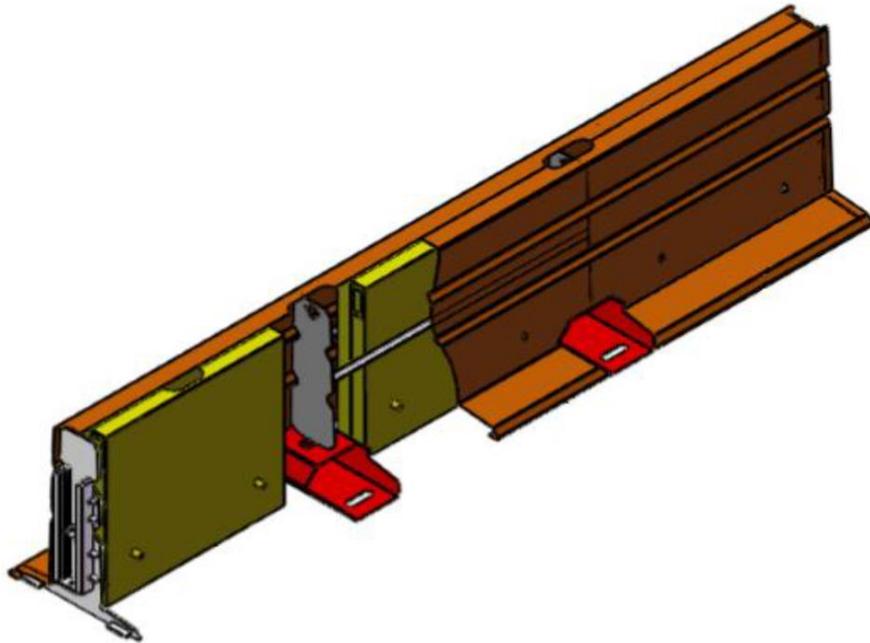


Typical cross section of Defender 100FS



Oblique view of Defender 100FS unit

## DEFENDER 100FS



Oblique view of Defender 100FS unit (showing ballast boxes)



Photograph of Defender 100FS unit

**Ownership:** Safe Barriers Pty Ltd

**Supplier:** Safe Barriers Pty Ltd  
Suite 54, 29 Smith Street  
Parramatta, NSW 2150  
Phone: 1800 169 799  
Website - [www.safebarriers.com](http://www.safebarriers.com)

## DEFENDER 100FS

**Test Level:** Approved to MASH TL3.

Test Level	Test Description	Deflection	Working Width (measured at base of units)
MASH – TL3	2270 kg vehicle @ 100 km/h, 25° impact angle	1.90 m	2.58 m

### Configuration:

- Standard 3.9 m long units are to be used.
- As the barrier is designed to resist loadings by deflecting the units should be free to move.
- The system was crash tested on a flat asphalt surface.

### Design:

- Design to be in accordance with the Defender 100FS Product Design and Installation Manual Version 2.2, dated 29 March 2021.
- It is recommended that the barrier (680 mm width) should be offset from the edge of traffic lane by:
  - traffic speed 40 km/h or less - 0.2 m;
  - traffic speed 41 to 60 km/h - 0.3 m;
  - traffic speed 61 to 80 km/h - 0.5m;
  - traffic speed greater than 80 km/h - 1.0 m
- Barrier length must be sufficient to adequately protect the hazard.
- The ends of the barrier must be protected with a suitable end treatment.

### Minimum Length:

156 m (not including terminals).

### Terminals permitted:

- Absorb-M (suitable for maximum design speed = 80 km/h, maximum posted speed = 70 km/h)
- SLED (suitable for maximum design speed = 80 km/h, maximum posted speed = 70 km/h)
- Quadguard M10 CZ Crash Cushion, pinned (anchored), suitable for MASH TL3 conditions.  
At the connection to the crash cushion, the Defender 100FS end unit is required to be transitioned to the crash cushion (incorporating 8# ground anchor pins) as detailed in the Defender 100FS Product Design and Installation Manual Version 2.2, dated 29 March 2021.  
Minimum pavement construction is 150 mm asphalt with 150 mm compacted sub-base.  
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.

## DEFENDER 100FS

The following terminal will not be accepted for temporary installations on Main Roads WA contracts awarded after 1 January 2022.

- TAU-II Crash Cushion, pinned (anchored), suitable for TL3 conditions. At the connection to the crash cushion, the Defender 100FS end unit is required to be transitioned to the TAU-II Crash Cushion (incorporating 8# ground anchor pins) as detailed in the Defender 100FS Product Design and Installation Manual Version 2.2, dated 29 March 2021. Minimum pavement construction is 150 mm asphalt with 150 mm compacted sub-base. 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.

### Point of Redirection:

When unpinned terminals are used the point of redirection shall be 66.3 m from the leading or trailing end, not including the terminals. When the terminal is a pinned Crash Cushion, the point of redirection shall be the nose of the pinned Crash Cushion.

### Limitations:

- The cross slope shall be not greater than 10% for the area between the edge of travelled way and the barrier, and the area immediately behind the barrier for the width of the deflection.
- Cannot be placed adjacent to kerbs or other objects within the deflection limits of the barrier, which may prevent lateral displacement.
- Standard 3.9 m long units cannot be used on radii less than 230 m.
- Objects should not be placed on top of the barrier as they are designed to move under impact. "Anti-Gawk" screens are not to be attached.

### Installation and Maintenance Requirements:

In accordance with the Defender 100FS Product Design and Installation Manual Version 2.2, dated 29 March 2021.

### Parts to be Replaced after Impact:

Units may need to be repaired after impact or replaced depending on the extent of damage.

### Parts Typically Re-Useable after Impact:

Undamaged units.

### References:

Item	Description
1	System tested on 28 July, 31 July and 14 September 2017 by Holmes Solution to MASH TL 3. A copy of this testing can be found on Main Roads file 19/7619.

### Relevant FHWA Approval Letters:

## DEFENDER 100FS

Refer to website:

[https://safety.fhwa.dot.gov/roadway\\_dept/countermeasures/reduce\\_crash\\_severity/barriers/pdf/b296.pdf](https://safety.fhwa.dot.gov/roadway_dept/countermeasures/reduce_crash_severity/barriers/pdf/b296.pdf)

Code	Description
B-296	Defender Barrier 100 FS - MASH TL 3.