

## Department of Transport and Main Roads

### Road Safety Barrier Systems and End Treatments: Product Information Sheet

This information sheet shall be, where relevant, read in conjunction with the manufacturer's latest manual.

## Defender Barrier

Temporary Steel Barrier

**Created:** Tuesday, 19 February 2019

4:42 PM

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**Status\*:** Accepted

\* TMR reserves the right to alter the Status and Status Expiry Date at any time. Always refer to latest version of TMR's Road Safety Barrier Systems and End Treatments document.

**Status Commencement Date:** Not Set

**Status Expiry Date\*:** Not Set

**Category:** Longitudinal

**Gating/Non-Gating:** Not Applicable

**Sub Category:** Semi-Rigid

**Redirective/Non-Redirective:** Redirective

**Main Material:** Steel

**Permanent/Temporary:** Temporary

#### Ownership:

Safe Barriers PTE LTD  
PO Box 148  
Novena Post Office  
Singapore  
913017

#### Supplier:

Safe Barriers Pty. Ltd.  
PO Box 7178  
Hemmant, QLD 4174  
Ph: 1800 169 799  
www.safebarriers.com



#### Introduction:

Defender Barrier is a steel barrier for temporary use at work zones.

Defender Barrier is available in the following variant:

- Defender Barrier 70
- Defender Barrier 100 LDS
- Defender Barrier 100 HC
- Defender Barrier 100 FS

Defender Barrier 70 is a freestanding, concrete ballasted steel barrier.

Defender Barrier 100 LDS is a steel barrier that is ground anchored every 9.15 meters.

Defender Barrier 100 HC is a steel barrier that is ground anchored every 48.15 meters.

Defender Barrier 100 FS is a free standing, concrete ballasted steel barrier with an increased minimum length (than Defender Barrier 70) and an anchored end terminal (s).

The system consists of interlocking 3900mm long (effective length) units that are secured in place by a connection pin.

#### Test Level:

Defender Barrier 70 has been tested to MASH test level TL-2.  
Defender Barrier 100 LDS has been tested to MASH test level TL-3.

Defender Barrier 100 HC has been tested to MASH test level TL-4.

Defender Barrier 100 FS has been tested to MASH test level TL-3.

#### Recommended End Treatments:

Absorb 350 for Defender Barrier 70, and Universal TAU-II for Defender Barrier 100 LDS, HC and FS systems.

Designer to consult supplier for details of transitions to these terminals.

**Design:**

**Point of Need:**

The Defender Barrier 70 system is considered to be redirective 10 barrier units or 39.0m from leading or trailing end, not including terminals.

The Defender Barrier 100 LDS system is considered to be redirective from first post, when connected with redirective end terminal.

The Defender Barrier 100 HC system is considered to be redirective from first post, when connected with redirective end terminal.

The Defender Barrier 100 FS system is considered to be redirective from first post, when connected with redirective end terminal.

**Pavement:**

This system was tested on a flat asphalt surface.

**End Treatment:**

The Defender Barrier 70 system has been successfully crash tested with ABSORB 350 end terminal.

The Defender Barrier 100 system has been successfully crash tested with Universal TAU-II crash cushion.

Please refer to an ABSORB 350 and Universal TAU-II information sheet in this document for product information.

**Minimum Length of Barrier:**

Variant	MASH Test Level	Minimum Length (m)	Note
Defender Barrier 70	TL -2	105.3	1
Defender Barrier 100 LDS	TL-3	78.0	1
Defender Barrier 100 HC	TL-4	97.5	1
Defender Barrier 100 FS	TL-3	156.0	1

Notes:

- 1. Not including terminals

**Deflection:**

Measured (Crash Test) Deflections and Working Widths:

Variant	Nominal Mass (kg)	Nominal Angle (deg)	Nominal Speed (km/h)	Recorded Deflection (m)	Working Width (m)
Defender Barrier 70	1100 <sup>1</sup>	25	70	0.74	1.42
	2270 <sup>1</sup>	25	70	1.20	1.88
Defender Barrier 100 LDS	1100 <sup>2</sup>	25	100	0.56	1.24
	2270 <sup>2</sup>	25	100	0.88	1.56
Defender Barrier 100 HC	1100 <sup>3</sup>	25	100	1.80	2.48
	2270 <sup>3</sup>	25	100	2.30	2.98
	10000 <sup>3</sup>	15	90	2.47	3.15
Defender Barrier 100 FS	1100 <sup>2</sup>	25	100	1.1	1.78
	2270 <sup>2</sup>	25	100	1.9	2.58

- Notes:
- 1. MASH TL-2 compliance testing
  - 2. MASH TL-3 compliance testing
  - 3. MASH TL-4 compliance testing

Operators, designers and supervisors of work zones must be cognisant that deflections outside the point of redirection are typically greater.

MASH TL-2 compliance transition testing on Defender Barrier 70, and MASH TL-3 compliance transition testing on Defender Barrier 100 were conducted at the transition of the barrier and terminal system .

Variant	Nominal Mass (kg)	Nominal Angle (deg)	Nominal Speed (km/h)	Recorded Transition Deflection (m)	Working Width (m)
Defender Barrier 70	1100	25	70	1.20	1.88
	2270	25	70	2.80	3.48
Defender Barrier 100	2270	25	100	0.31	0.99

**Limitations:**

- The crossfall between the edge of travelled way and the barrier should not exceed 10%.
- This system may be installed to a minimum horizontal and vertical curvature of 230m.

**References:**

- NCHRP Report 350 & MASH
- Defender Barrier 70 Product Manual – 28-June-2017
- Defender Barrier 100 LDS Product Manual – July 2018
- Defender Barrier 100 HC Product Manual - July 2018
- Defender Barrier 100 FS Product Manual – April 2018
- Austroads acceptance documents dated 06-Dec-2017, 05-June-2018 and 29 October 2018
- Holmes Solutions MASH Compliance Testing Reports: 131393.01RP.051(v1.2),131393.03RP.1017(v1.3), 131393.05RP.0917(v1.2), 131393.02RP.0717(v1.2), 131393.00 (v1.2)