Aluminium Versa Shields Compliance and Certification

Introduction

The Mabey Aluminium Versa Shield range is a shoring product manufactured by American Shoring in the USA. Mabey PTY Australia are sole distributers of American Shoring Inc. Products to the Australian and New Zealand Construction Market. Mabey have requested local engineering compliance sign-off for the Aluminium Versa Shields Range.

Statement

As requested,

American Shoring Inc. company documentation has been reviewed by a qualified Australian structural engineer. The information supplied has been examined for compliance with relevant Australian Standards (see page 2).

Please find below as follows:

- Shoring has been designed by local chartered structural engineers.
- Design is in accordance with Australian, UK, EU, and USA standards. International standards are greater than or equivalent to local standard, AS 4744 – ''Steel shoring and trench lining equipment, Part 1: Design''. AS 4744:1 is based on the European Standard EN 13333:1.
- Factory testing to verify product capacity under equivalent site loading has been conducted.
- American Shoring Equipment has an established reputable history of supplying shoring equipment to the global construction industry for over 40 years.
- The product has demonstrated its performance in a range of conditions throughout the US, Australia and New Zealand.
- The panels and components are maintained in accordance with manufacturers specifications.
- The Mabey Product User Guide which contains further details, including installation and extraction mythologies etc. is available online.

Please find design certification as per pages 2 and 3.

Regards

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Design Certification of:

Mabey Aluminium Versa Shields Range

This document certifies the capacity of the Mabey Hire PTY LTD Aluminium Versa Shield Range when used in accordance with relevant standards and Mabey Product User Guides. It includes all panel and strut configurations as per table below[1]:

Panel Type (mm)	Panel Length (mm)	Panel Height (mm)	Panel Thickness (mm)	Min. Width (mm)[2]	Max. Width (mm)[2]	Strut Pipe Diameter (OD) (mm)	WLL (kPa)	WLL – With High Clear Bars (kPa)
Manhole Base	2400	2400	102	2020	7420	141.3 (schedule 80)	56	---------
Manhole Base	3000	2400	102	2020	7420	141.3 (schedule 80)	56	---------
Lower[3]	2000	2000	84	600	4000	141.3 (schedule 80)	55	55
Lower[3]	2400	2400	84	600	4000	141.3 (schedule 80)	44	44
Extension[3]	2400	2000	84	600	4000	141.3 (schedule 80)	44	44
Lower[3]	3000	2000	84	600	4000	141.3 (schedule 80)	35	35
Extension[3]	3000	2000	84	600	4000	141.3 (schedule 80)	35	35
Lower[3]	4000	2400	142	600	4000	141.3 (schedule 80)	58	28
Extension[3]	4000	2000	142	600	4000	141.3 (schedule 80)	58	33
Lower[3]	5000	2400	181	600	6000	219.1 (schedule 80)	99	50
Extension[3]	5000	2000	181	600	6000	219.1 (schedule 80)	109	64
Lower[3]	7200	2400	181	600	6000	219.1 (schedule 80)	36	36
Extension[3]	7200	2400	181	600	6000	219.1 (schedule 80)	36	36

All the above panels (except manhole base) are adaptable with the High Clear Arch Strut Configuration Setup. These range from a minimum width of 1.0m to a maximum width of 6.0m (internal of panels).

All the above panels (except manhole base) are adaptable with the 90-degree Corner Strut Configuration Setup. The Panel SWL remains the same when using 90-degree Corner Struts.

The Aluminium Versa Shield range is compliant with the following standards:

- AS 4744.1: 2000 – Steel Shoring and Trench Lining Systems – Part 1 - Design[4]
- AS4100: 1998 – Steel Structures
- AS/NZS 1664.1: 1997 – Aluminium Structures

Signed

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[1] Also includes all nominated pins and clips etc.

[2] Widths stated are internal of panel to internal of panel.

[3] If the panel is to be used as an end panel at the end of a trench box or manhole box, the above kPa SWL is suitable providing a minimum 100mm bearing is allowed for at either end.

[4] Part 1.4 (New Designs and Innovations) within AS 4744:1:2000 states that ''This Standard is not intended to preclude novel materials, designs and the like, which do not comply with this Standard or are not mentioned in it but can be shown to give equivalent or superior results''. Aluminium components therefor fall under novel materials and designs. As the versa shields range has aluminium panels and steel struts the appropriate material standards have been used to comply with AS 4744.1:2000

Lifting Points

This Document Certifies the capacity of the lifting points on all the box panels detailed on page 2.

The minimum WLL of a single lifting point on any box panel is 2.8T (FOS of 3) or 11.2T for 4 no. lifting points. This rated capacity is for any angle between vertical and 60° from vertical.

It is the user's responsibility to determine all relevant safety matters regards lifting, transporting, installing and extracting of shoring components. A minimum of 2 chains must always be used when lifting box panels. A minimum of 4 chains must always be used when lifting built up box systems. Additional care must be used if using a single chain to pull on lifting points where a trench box system is held tightly in the ground.

Signed 

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Appendix A: Strut Designation

Introduction

AS 4744.1:2000, Section 3.2 gives guidance on supporting componentry designation.

The below gives details on the strut designation of Versa Shield Struts if this information is not displayed:

Strut Size	Strut Length (mm)	Strut Designation
5'' Inch Corner Spreader	Fixed 90-degree corner	Strut AS 4744 – 254 (kN) / 254 (kN)-0.4m-28kg
8'' Inch Corner spreader	Fixed 90-degree corner	Strut AS 4744 – 503 (kN) / 503 (kN)-0.4m-57kg

5'' Inch Spreader	600	Strut AS 4744 – 529 (kN) / 534 (kN)-0.6m -18.6kg
	800	Strut AS 4744 – 525 (kN) / 534 (kN)-0.8m -24.8kg
	1000	Strut AS 4744 – 521 (kN) / 534 (kN)-1.0m -31.0kg
	1200	Strut AS 4744 – 516 (kN) / 534 (kN)-1.2m -37.2kg
	1500	Strut AS 4744 – 506 (kN) / 534 (kN)-1.5m -46.5kg
	2000	Strut AS 4744 – 486 (kN) / 534 (kN)-2.0m -62.0kg
	2500	Strut AS 4744 – 461 (kN) / 534 (kN)-2.5m -77.5kg
	3000	Strut AS 4744 – 433 (kN) / 534 (kN)-3.0m -93.0kg
	3500	Strut AS 4744 – 412 (kN) / 534 (kN)-3.5m -108.5kg
	3800	Strut AS 4744 – 390 (kN) / 534 (kN)-3.8m -117.8kg
	4000	Strut AS 4744 – 368 (kN) / 534 (kN)-4.0m -124.0kg

 8'' Inch Spreader	500	Strut AS 4744 – 859 (kN) / 1300 (kN)-0.5m -32.5kg
	600	Strut AS 4744 – 856 (kN) / 1300 (kN)-0.6m -39.0kg
	800	Strut AS 4744 – 850 (kN) / 1300 (kN)-0.8m -52.0kg
	1000	Strut AS 4744 – 844 (kN) / 1300 (kN)-1.0m -65.0kg
	1200	Strut AS 4744 – 837 (kN) / 1300 (kN)-1.2m -78.0kg
	1400	Strut AS 4744 – 831 (kN) / 1300 (kN)-1.4m -91.0kg
	1500	Strut AS 4744 – 827 (kN) / 1300 (kN)-1.5m -97.5kg
	2000	Strut AS 4744 – 809 (kN) / 1300 (kN)-2.0m -130.0kg
	2500	Strut AS 4744 – 789 (kN) / 1300 (kN)-2.5m -162.5kg
	2800	Strut AS 4744 – 775 (kN) / 1300 (kN)-2.8m -182.5kg
	3000	Strut AS 4744 – 766 (kN) / 1300 (kN)-3.0m -195.0kg
	3500	Strut AS 4744 – 741 (kN) / 1300 (kN)-3.5m -227.5kg
	3800	Strut AS 4744 – 724 (kN) / 1300 (kN)-3.8m -247.0kg
	4000	Strut AS 4744 – 712 (kN) / 1300 (kN)-4.0m -260.0kg
	4500	Strut AS 4744 – 679 (kN) / 1300 (kN)-4.5m -292.5kg
	5000	Strut AS 4744 – 641 (kN) / 1300 (kN)-5.0m -325.0kg
	5500	Strut AS 4744 – 600 (kN) / 1300 (kN)-5.5m -357.5kg
	6000	Strut AS 4744 – 555 (kN) / 1300 (kN)-6.0m -390.0kg

High clear Bars	1000	Strut AS 4744 - 480(kN) / 200 (kN)-1.0m-1240kg
	1500	Strut AS 4744 - 480(kN) / 200 (kN)-1.5m-1572kg
	2000	Strut AS 4744 - 480(kN) / 200 (kN)-2.0m-1680kg
	2500	Strut AS 4744 - 480(kN) / 200 (kN)-2.5m-2012kg
	3000	Strut AS 4744 - 480(kN) / 200 (kN)-3.0m-1940kg
	3500	Strut AS 4744 - 480(kN) / 200 (kN)-3.5m-2075kg
	3800	Strut AS 4744 - 480(kN) / 200 (kN)-3.8m-2345kg
	4000	Strut AS 4744 - 480(kN) / 200 (kN)-4.0m-2407kg
	5000	Strut AS 4744 - 480(kN) / 200 (kN)-5.0m-1616kg
	5800	Strut AS 4744 - 480(kN) / 200 (kN)-5.8m-2820kg
	6000	Strut AS 4744 - 480(kN) / 200 (kN)-6.0m-2882kg