Heavy Duty Steel Shields Compliance and Certification

Introduction

The Mabey Heavy Duty Shield range is a shoring product manufactured by Pro-Tech Equipment in the USA. Mabey PTY Australia are sole distributers of Pro-Tech Equipment to the Australian & New Zealand Construction Market. Mabey have requested local engineering compliance sign-off for the Heavy Duty Steel Shields Range.

Statement

As requested,

Pro-Tech Equipment 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.
- Pro-tech Equipment has an established reputable history of supplying shoring equipment to the global construction industry for over 20 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 page 2.

Regards

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Design Certification of:

Mabey Heavy Duty Steel Shields Range

This document certifies the capacity of the Mabey Hire PTY LTD Steel Heavy Duty 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)	Working Load Limit (kPa)
Manhole Base	2400	2400	104	1500	4000	219.1 (schedule 80)	103
Lower[3]	4000	2400	104	600	6000	219.1 (schedule 80)	88
Extension[3]	4000	2000	104	600	6000	219.1 (schedule 80)	100
Lower[3]	5000	2400	104	600	6000	219.1 (schedule 80)	61
Extension[3]	5000	2000	104	600	6000	219.1 (schedule 80)	60
Lower[3]	6000	2400	155	600	6000	219.1 (schedule 80)	60
Extension[3]	6000	2000	155	600	6000	219.1 (schedule 80)	62

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). The Panel SWL remains the same when using High Clear Arch Struts.

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 Heavy-Duty Steel Shield range is compliant with the following standards:

- AS 4744.1: 2000 – Steel Shoring and Trench Lining Systems – Part 1 - Design
- AS4100: 1998 – Steel 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.

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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 4.2T (FOS of 3) or 16.8T 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. Mabey have in stock over 20,000 individual Strut members in various lengths and sizes. Considering this number of strut members, it is not always practical or possible to ensure all members have this information displayed.

The below gives details on the strut designation of HDS Shield Struts:

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

 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