

RIGGING SPECIFICATIONS

126 Belair Road
Hawthorn, South Australia,
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1. Technical Description

The set consists of three box trusses, one downstage, one at mid-stage and another upstage.

These box trusses are each 12m in length and supported by two cables per box truss off the beams/supports provided at the various theatres.

Directly under the box trusses are 5 flat trusses that run from the front of the stage to the back. These flat trusses are inclined falling from the front of the stage to the back of the stage. Each of these trusses is 11m in length.

Both the flat and box trusses support various stage lights, with two projectors also supported by the downstage truss.

The diagram below illustrates the above stage lights set out.

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2. Technical Data

2.1 Flat Trusses

Type:	CLS Heavy Duty Flat Truss manufactured by Concert Lighting Systems Australia Pty Ltd.
Dimensions:	300mm deep truss with 2/5m long sections and 1/1m long section bolted together as per the manufacturer's requirements to provide an 11m long truss.
Materials:	Structure consists of steel circular hollow tubes that are welded together.
Dead Load:	Self weight of truss plus clamps, yuppys and cable is 69.2kg per 11m truss.
Equipment Loads:	Consists of 5 Martin Stage Cyclos per truss, 52.5kg.
Support Details:	Each truss is supported off the three box trusses using yuppys.

2.2 Box Trusses

Type:	Prolyte S52V manufactured by Prolyte
Dimensions:	Square box truss, size not known with 4/3m long sections joined together as per the manufacturer's requirements to provide a 12m long truss.
Materials:	Aluminium tubes for the chords and web members welded together to form a square box truss.
Dead Load:	Self weight of truss plus cable is 200kg for downstage and mid stage box trusses and 205kg for the upstage truss due to an extra 5kg in cables for this truss.
Equipment Loads:	Downstage Truss- 2 Mac 700 Wash, 4 Atomic+ Scroller, 3 Source 4 26 Deg, 2 Sanyo HDT100L and 2 Projector Bracket and Rigging, total load 200.4kg. Mid-stage Truss- 2 Mac 700 Wash, 4 Atomic+ Scroller, 4 Source 4 26 Deg, total load 139.2kg. Upstage Truss- 2 Mac 700 Wash, 4 Atomic+ Scroller, total load 104kg.
Support Details:	Each truss is supported by two Verlinde SM10 chain motors rated at 1000kg that are hung off the support beams/points at the various theatres. The two support points can be at each end of the 12m truss or at any other point in from the end of the trusses provided that the length of truss past the support, the cantilever, does not exceed 4m on either end.

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3. Hanging Points for the Three Box Trusses

Table 1- Case where the cantilevers at both ends of the trusses are equal to each other and not greater than 4m or where there are no cantilevers, that is the box truss is supported at each end, hence it spans the full 12m

Values expressed in kg			Detail by chain	
			Stage Right	Stage Left
	Downstage Truss			
1	Dead Load	315.3	157.7	157.7
2	Lighting & Projectors	296.7	148.4	148.4
3	Hoists and chain	250	125	125
	Overall Total (without coefficient applied)	862	431.1	431.1
	Overall Total (with coefficient applied)	1198.4	599.3	599.3
	Mid-Stage Truss			
1	Dead Load	315.3	157.7	157.7
2	Lighting	226.7	113.4	113.4
3	Hoists and chain	250	125	125
	Overall Total (without coefficient applied)	792	396.1	396.1
	Overall Total (with coefficient applied)	1093.4	546.8	546.8
	Upstage Truss			
1	Dead Load	320.3	160.1	160.1
2	Lighting	191.5	95.8	95.8
3	Hoists and chain	250	125	125
	Overall Total (without coefficient applied)	761.8	380.9	380.9
	Overall Total (with coefficient applied)	1046.6	523.3	523.3

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Table 2- Case where the cantilevers at both ends of the trusses are not equal to each other but neither cantilever is greater than 4m. The table is for the worst case, which is where two thirds of the load is supported by one chain with the other third supported by the other chain. The figures below are for the case where the longer cantilever is stage right. If the longer cantilever is stage left the figures for stage right and left are simply interchanged.

Values expressed in kg			Detail by chain	
			Stage Right	Stage Left
	Downstage Truss			
1	Dead Load	315.3	210.2	105.1
2	Lighting & Projectors	296.7	197.8	98.9
3	Hoists and chain	250	125	125
	Overall Total (without coefficient applied)	862	533	325
	Overall Total (with coefficient applied)	1198.4	736.4	462
	Mid-Stage Truss			
1	Dead Load	315.3	210.2	105.1
2	Lighting	226.7	151.1	75.6
3	Hoists and chain	250	125	125
	Overall Total (without coefficient applied)	792	486.3	305.7
	Overall Total (with coefficient applied)	1093.4	666.4	427
	Upstage Truss			
1	Dead Load	320.3	213.5	106.8
2	Lighting	191.5	127.7	63.8
3	Hoists and chain	250	125	125
	Overall Total (without coefficient applied)	761.8	466.2	295.6
	Overall Total (with coefficient applied)	1046.6	635.3	411.4

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Notes to Tables 1 & 2 above:

1. The dead load includes the dead load of the flat trusses and box truss and the cabling on the flat trusses and box truss and the yuppys that connect the flat trusses to the box trusses.
2. The overall totals with coefficient applied allow for a 1.2 coefficient applied to the dead load and a 1.5 coefficient applied to the lighting, projectors and hoists and chains. One could argue that the lighting, projectors and hoists and chains are permanent loads, hence dead loads and therefore should only be multiplied by a coefficient of 1.2. However as some this equipment can be moved, to allow for dynamic affects they are treated as live loads hence the use of a 1.5 coefficient. This is considered conservative. These are the coefficients applicable in Australia under AS 1170.1, our loading code.
3. The downstage truss only has 3 Source 4 26 deg lights fitted to it but an extra one has been allowed for to be fitted alongside the projector as for the other projector so the loading is the same on one end of the truss as the other end.