TURBO™
SCAFFOLDING

ALUMINIUM LATTICE BEAMS

www.turboscaffolding.com.au

1. General Introduction

This guide is for Turbo Scaffolding Aluminium Lattice Beams only.

It is strongly recommended that all calculations based on the technical information presented in this guide be independently verified and checked by a qualified person such as a structural engineer.

The load values in the tables are base values and are only for beams in a simply supported configuration. To achieve greater loads, spans, or to use beams in different configurations please contact TURBO SCAFFOLDING or a qualified structural engineer.

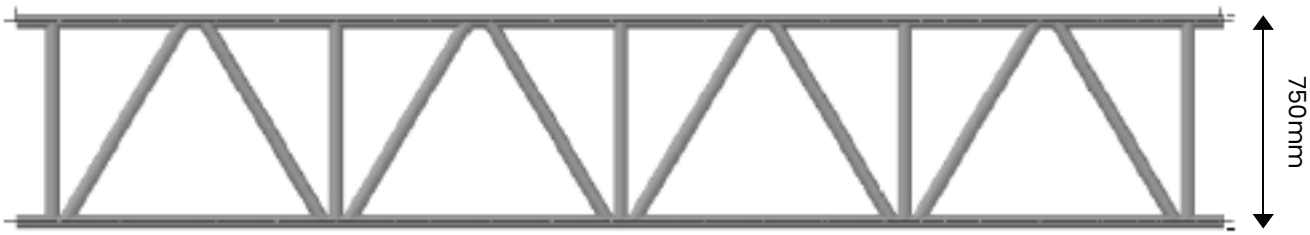
2. General description

The top and bottom chords and the verticals of Turbo Scaffolding aluminium beams are made from 48.3mm diameter tube with thicknesses of 4.0mm.

Turbo Scaffolding aluminium beams are connected using 38mm diameter spigot connectors and secured using 4 x M12 x 60mm high tensile bolts or a safety pins.

Aluminium lattice beam 450

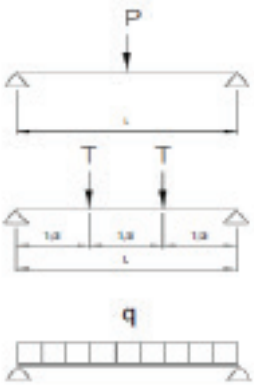
Aluminium lattice beam 750



Description	Length [m]	Weight [kg]
Aluminium lattice beam 450	2.00	8.5
	3.00	13.5
	4.00	17.1
	6.00	24.9
	8.00	32.7
Aluminium lattice beam 750	2.25	14.0
	3.25	19.5
	4.25	29.0
	5.25	32.1
	6.25	39.1
	7.25	44.2

Permissible load capacity of beams

Aluminium latttice beam 450



Maximum Moment:

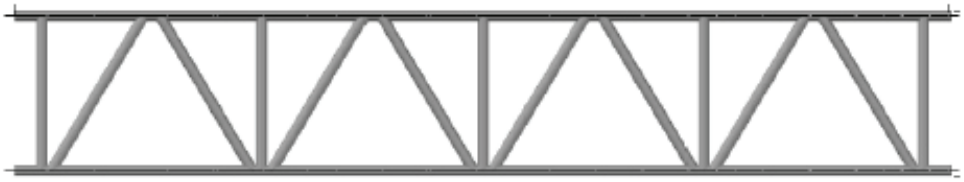
- At 1m Bracing: 13.2kNm
- At 2m Bracing: 6.2kNm
- Self Weight: 0.05kN/m

- E: 70,000N/mm2
- I: 4,481.00 cm4
- Maximum Shear: 9.0kN

Length	Top chord bracing intervals A	Central Point Load P	Point Load at Third Points T	UDL q
l(m)	[m]	(kN)	(kN)	(kN/m)
3	1.0	13.41	6.97	5.36
	1.5			
	3.0	5.40	3.85	3.75
4	1.0	12.33	6.80	3.98
	1.3			
	2.0	7.57	4.57	3.31
5	1.0	11.83	7.53	3.27
	1.65	7.06	4.54	2.56
	2.5	4.07	2.62	1.48
6	1.0	8.67	6.29	2.56
	1.5	5.84	4.36	1.95
	2.0	3.78	2.83	1.30
7 (3+4)	1.0	4.46	5.39	1.83
	1.4		3.86	1.52
	1.75	4.38	2.95	1.15
8	1.0	6.35	4.63	1.55
	1.6	3.78	2.77	0.93
	2.0	2.75	2.02	0.68

Permissible load capacity of beams

Aluminium lattice beam 750



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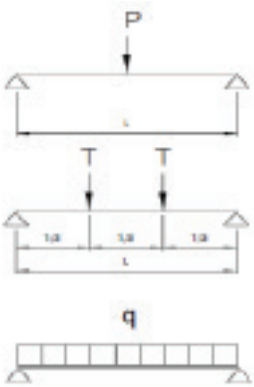
"A" configuration

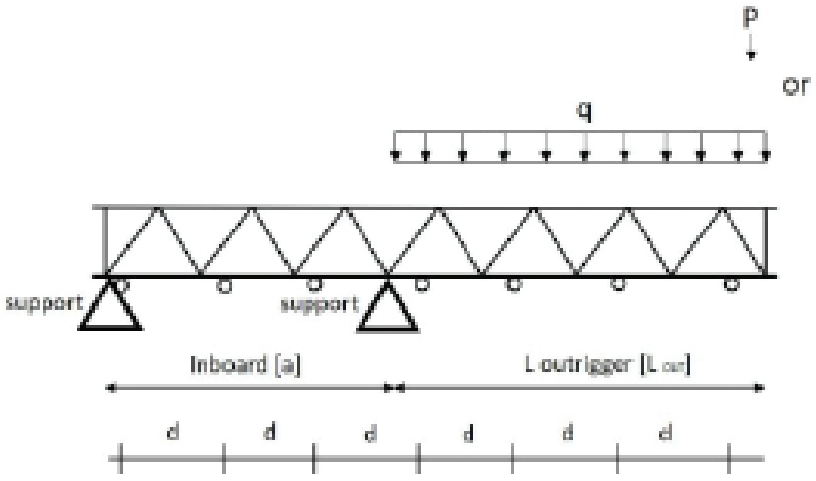
"V" configuration



Length	Top chord bracing intervals A	Central Point Load P	Point Load at Third Points T	UDL q
l(m)	[m]	(kN)	(kN)	(kN/m)
3.25	1.0	18.00*	10.90	8.97
	3.0	11.00	7.75	6.72
4.25	1.0	15.80	9.18	6.42
	2.0	11.70	8.43	5.54
5.25	1.0	14.80*	8.60	5.00
	2.0	13.40	8.01	5.00
6.25	1.0	12.80	8.85	4.04
	2.0	7.13	5.23	2.30
7.25	1.0	13.30*	7.49	3.30
	2.0	7.20	5.28	2.00
8.50 (4.25+4.25)	1.0	11.90	7.25	2.71
	2.0	4.61	3.05	1.07

Aluminium lattice beam 450

Cantilever arrangement for aluminium beams

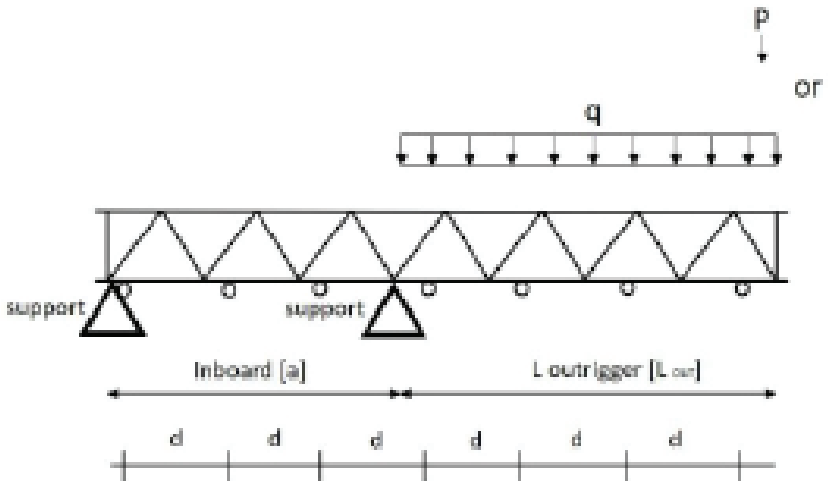


Length of outrigger [L out]	P [kN] for d=1m	Min Inboard [a]
1m	9.0	1m
2m	6.6	1.5m
3m	4.4	1.5m
4m	3.3	1.5m
5m	2.64	1.5m
6m	2.2	1.5m
7m	1.89	1.5m
8m	1.65	1.5m

Length of outrigger [L out]	P [kN] for d=1m	Min Inboard [a]
1m	9.0	0.5m
2m	4.5	1m
3m	2.93	1.5m
4m	1.65	1.5m
5m	1.06	1.5m
6m	0.73	1.5m
7m	0.54	1.5m
8m	0.41	1.5m

Aluminium lattice beam 450

Cantilever arrangement for aluminium beams

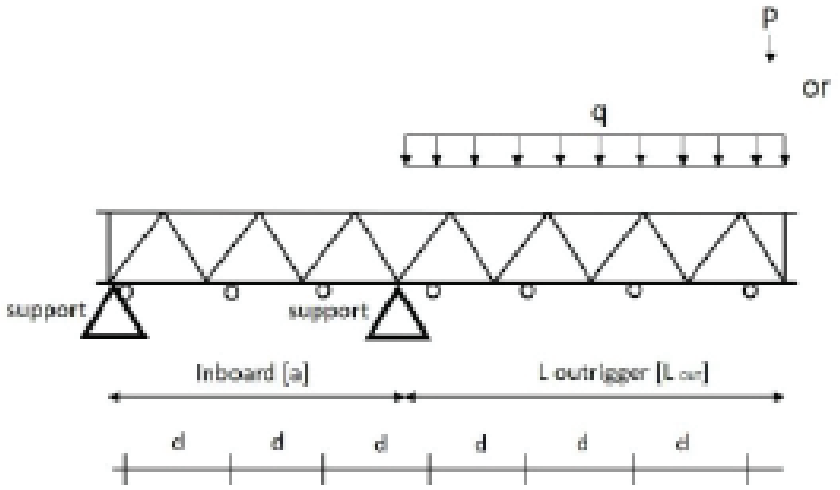


Length of outrigger [L out]	P [kN] for d=1m	Min Inboard [a]
1m	6.2	0.7m
2m	3.1	0.7m
3m	2.07	0.7m
4m	1.55	0.7m
5m	1.24	0.7m
6m	1.03	0.7m
7m	0.89	0.7m
8m	0.78	0.7m

Length of outrigger [L out]	q [kN] for d=1m	Min Inboard [a]
1m	9.0	0.5m
2m	3.1	0.7m
3m	1.38	0.7m
4m	0.78	0.7m
5m	0.5	0.7m
6m	0.34	0.7m
7m	0.25	0.7m
8m	0.19	0.7m

Aluminium lattice beam 750

Cantilever arrangement for aluminium beams

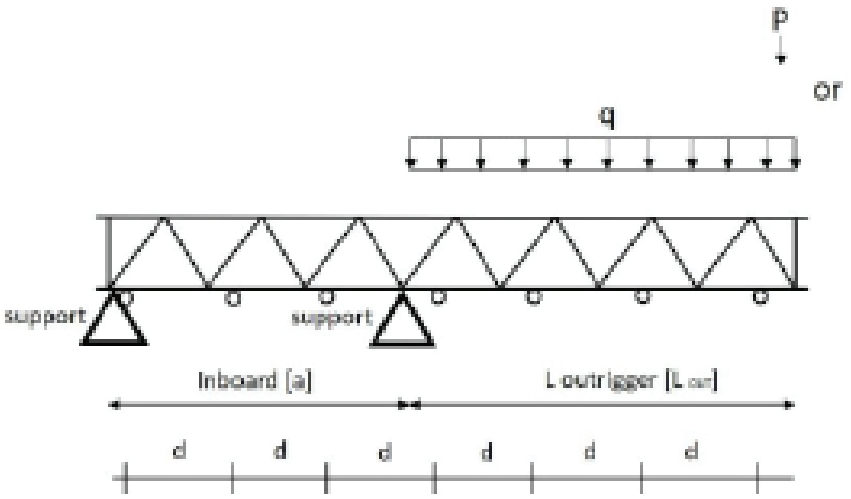


Length of outrigger [L out]	P [kN] for d=1m	Min Inboard [a]
1m	14.4	1m
2m	14.4	1.5m
3m	8.17	1.7m
4m	6.13	1.7m
5m	4.9	1.7m
6m	4.08	1.7m
7m	3.5	1.7m
8m	3.06	1.7m

Length of outrigger [L out]	q [kN] for d=1m	Min Inboard [a]
1m	14.4	0.5m
2m	7.2	1.0m
3m	4.8	1.5m
4m	3.06	1.7m
5m	1.96	1.7m
6m	1.36	1.7m
7m	1.0	1.7m
8m	0.77	1.7m

Aluminium lattice beam 750

Cantilever arrangement for aluminium beams



Length of outrigger [L out]	P [kN] for d=1m	Min Inboard [a]
1m	12	0.9m
2m	6.0	0.9m
3m	4.0	0.9m
4m	3.0	0.9m
5m	2.4	0.9m
6m	2.0	0.9m
7m	1.7	0.9m
8m	1.5	0.9m

Length of outrigger [L out]	q [kN] for d=1m	Min Inboard [a]
1m	14.4	0.5m
2m	6.0	0.8m
3m	2.67	0.9m
4m	1.5	0.9m
5m	0.96	0.9m
6m	0.67	0.9m
7m	0.49	0.9m
8m	0.38	0.9m

Beam bracing

Bracing must always be fitted. Compression chords must be braced perpendicularly, diagonally and at each end with vertical crossbracing to prevent buckling and twisting.

When beams are spanning between two supports and the load is applied downwards, the compression chord is on the top. When the load is upwards; predominantly wind uplift or for downward loaded cantilevers the compression chord is on the bottom.

Bracing must be fitted to connect the top and bottom chords.

The compression chord must be identified for bracing requirements.

The maximum recommended compression chord spacing is 2m.

Plan bracing should be fitted to either the vertical members of the lattice beam nearest the chord bracing or alternatively directly to the chord braces.

Spiggot Connection

Permissible tension forces in the spigot connection of the 450mm Aluminium lattice beam: 39.1 kN.

Permissible tension forces in the spigot connection of the 750mm Aluminium lattice beam: 49.1 kN.

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