



DS40 Stage Truss

General Information.....

- All load calculations and technical information contained in this section have been sourced from Total Solutions Group Ltd who are the truss manufacturers and Scott White & Hookins LLP who we use for the structural manual, structural calculations and structural advise.
- All load calculations in this section are subject to a safety factor, which takes into account the extra effects of the self weight of the roof panel, 3 off sodium work lights and the effects of rain.

Guidelines.....

- The truss manufacturers guidelines state that any load secured to the truss should only be attached on the main chords (50mm tube) at the node points (V section), using purpose made connectors with a secondary safety chain or steel rope.
- The truss may only be rigged by competent, and suitably experienced people/organisations that have the relevant experience of structures of this type.
- It is the responsibility of the Event Organiser or their on site representative to ensure that the following load limits and guidelines are strictly complied with. Failure to adhere to these guidelines may severely compromise Health & Safety issues associated with this type of structure. Therefore, Daytona Stage Hire shall not be held responsible for any damage or consequential loss if these guidelines and load calculations are broken. Furthermore, should damage occur to any of Daytona Stage Hire's equipment or staff as a direct result of breaking these guidelines, the Event Organiser or their on site representative shall be held responsible

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DS40 Stage Truss continued

Specification.....

- DS40 stage uses a combination of quad and ladder trussing, both types are manufactured by Total Solutions Group Ltd to Daytona Stage Hire dimension requirements.
- Truss Material Type:
6082-T6 Aluminium alloy with corresponding filler wire grade 4043-A.
- Materials Standards:
BS EN755-2.
1997 Aluminium and aluminium alloys BS2901-4.
1990 Filler rods and wires for gas shielded arc welding.
- Manufacturing Standards:
BS8118 part 1.
1991 Structural use of aluminium BS8118 part 2.
1991 Structural use of aluminium BS6399 loading for buildings BS7905-2.
2000 Lifting equipment for performance, broadcast and similar operations BS EN287-2.
1992 Approval testing of welders for fusion welding BS EN288-4.
1992 Specification and approval of welding procedures for metallic materials BS EN288-8.
1995 Specification and approval of welding procedures for metallic materials.

Loadings.....

- Loadings for quad trussing per left to right 7.8m span.
1028kgs uniform distributed load.
514kgs central point load.
385kgs triple point load.
257kgs quarter point load.
- Loadings for ladder trussing per left to right 7.8m span.
349kgs uniform distributed load.
174kgs central point load.
kgs triple point load.
131kgs quarter point load.
- Loadings overall 2075kgs.
- Whenever chain motors are used, the above load figures must be divided by 1.25, this will provide a safety margin to counter the 'snatch' factor common to this equipment.
- The manufacturers load calculations are on page 3 & 4.
- The basic plan of the stage trussing is on page 5.

SUMMARY OF LOAD CAPACITIES.

The following table summarises the allowable loads on spans up to 12 metres.

Span		3.0	6.0	9.0	12.0
		m	m	m	m
Uniformly distributed	kg	2460	673	349	217
	kN	24.12	6.60	3.42	2.13
Central point load	kg	1230	336	174	108
	kN	12.06	3.30	1.71	1.06
Quarter point loads at each point	kg				
	kN	6.03	1.65	0.86	0.53
Third point loads at each point	kg	922	252	131	82
	kN	9.04	2.47	1.28	0.80

Notes:

- All loads are given in kilograms and kilonewtons
- All loads are applied symmetrically
- Allowance has been made for self-weight of truss
- Allowance has been made for frequent use factor of 83%
- The payload on a truss has been calculated as a permanent action. Should it be necessary to consider the payload as a variable action, the tabulated figures should be reduced to 90% of the given values.
- All spans must be effectively laterally restrained at a maximum of 2 metre centres

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