



Imposed Loads

The 15m Orbit roof is often used for daytime events or with simple ambient lighting. In these cases there is no meaningful loading. Even when more intricate lighting is used with secondary rigging the roof is unlikely to have to carry more than 20% of its capacity.

Wind Loads

The design of the Orbit system included the effects of wind loading on the structure, up to a design wind speed of 52m/s. Details on uplift forces due to wind are covered in detail in the wind policy section.

Working Loads

For some site or job related calculations the loads used may be based on actual imposed loads for the case being tested, or a reduced load capacity may be set. We refer to these as working loads.

Normally the only case where this approach is considered is the transfer of loads to the ground where the permitted ground bearing pressure is low.

Units

The measurements are metric, the 'metre' normally being used. Given that most of the equipment and methods used are modular, most dimensions given are the distances between the centres of the uprights, or the bay size. Where things are not in line with the stage, two measurements are given. The distance from the side of the stage first, then the off set distance from the front of the stage. These measurements will normally contain some direction information. I.e. '2.4m off stage, 1.2m down stage, of the down stage edge.

Stage Base

The SRG decking system has been purpose designed to provide a solid deck to a RMD stage substructure. The deck is constructed in bays of 2.4 x 2.4m or 1.2 x 2.4m using three types of steel beam to provide Primaries (No.1s), Secondaries (No.2s), Joists (No.3s). Sheets of 25mm plywood (generally Finished Birch) with an anti-slip paint surface are fitted into the bays and secured with steel corner plates bolted through to the No.2s and to the vertical standards of the substructure.

Orbit Roof

When complete a roof, is a combination of a “D-end”, a “Bay” and a “Cantilever”. All of which use the same components. Semi-circular arches span the width of the stage, the arches are held apart with purlins running up down stage, between the node's of the arch which form the Bay. The D-End consist of 2 half arches connected to the centre of the upstage (rear) arch at 60deg. Angled purlins run horizontally between the nodes on the arches. The cantilever is a standard arch angled forward from the down stage arch (front). Angled purlins between the nodes on the arches and the cantilever. The number and size of the bays used allow different stage depths to be constructed. Or more arches may be added it increase the load capacity of the roof.

Description

The Orbit Stage Roof is a high load bearing clear-span modular system, using aluminium ladder beams and tensioned fabric covers. The roof width is fixed, but the depth is altered as required. The roof is built on a stage deck, which provides ballast.

Loading

Design Load - 1500kg per arch

Working Load (Single Arch) - 1500kg per arch
(Double Arch) - 3000kg per arch

Max design wind speed - 52m/s

Min ablest wind speed - 27m/s

Bay Sizes

Max Bay Size - 3.6m

Standard Bay Sizes - 3.6m

Other Bay Sizes - 0.4m and 1.8m

D-End depth - 7.5m

Cantilever depth - 3.0m

Arch (Roof cross section)

Outside width - 14915mm

Inside width - 13905mm

Outside height - 7280mm

Inside height - 6775mm

Top of leg - 2604mm

