

Suspension units may only be attached to the roof-supporting framework and altered by the relevant MMG service firms (e.g. opening a bridle). Orders for suspensions must be made in writing to MMG's Technical Exhibition Services Division, by means of form 4.1. The construction to be suspended may be situated only within the limits of the stand. Any intended suspension point on the roof construction of the halls can be loaded to a maximum of 100 kg **perpendicularly**. The maximum area load is 5 kg/m<sup>2</sup> stand area. Suspension units for heavier loads only on request. At the end of each fastening point (interconnection point) is an "O" ring.

**For reasons of safety, the following types of suspension are not permissible:**

- Suspension of stand components
- Securing of stand components or exhibits (stand components or exhibits must stand securely on their own)
- Suspended constructions connected rigidly or by force of gravity with the hall floor.

The use of lifting devices (e.g. chain hoists, motor hoists) absolutely must be discussed and agreed with the respective contracting firm of MMG.

With regard to the attachment of objects to be suspended, the relevant safety regulations are to be complied with. These also and especially include BGV A1 (regulations of social insurance against occupational accidents, general regulations), BGV C1 (stage performance: places of events and production), BGV D8 (winches, lifting and pulling devices) and, if applicable, the VStättV directive governing places of assembly (see also the provisions set out under IGVWSQ P1 relevant to traverse systems).

**The following details and enumerations serve as an overview and do not claim to be complete.**

**Spotlights, loudspeakers, effects devices etc. are always to be provided with a second independent safety facility (safety cable)! Compliance with the provisions set out under BGI 810-3 is required with regards to the dimensioning of the safety cables. The safety attachment is to be executed in such a way that the falling distance does not exceed 20 cm.**

**Cross-beams with lighting systems are to be equipped by the system installer with additional protective potential equalisation (copper, min. 10 mm<sup>2</sup>) as per VDE 0100 part 711. Use form 3.1 to order the power supply transfer point at ground level. The equipotential bonding lead between this transfer point and the cross-beam with lighting system may be carried out by the exhibitor's own electricians or be ordered for execution by the MMG-accredited electrical contractor.**

### ■ Permissible means of attachment

**Nominal load at 0.5 times the carrying capacity value indicated by the manufacturer and not exceeding one tenth of the minimum breaking force. Cables and straps may be loaded to a maximum of one twelfth of the minimum breaking force.**

**Ensure that edges are protected! The edge radius must be at least as large as the diameter of the means of attachment (cable, span set etc.). Means of attachment made of synthetic fibres are not suitable for use close to spotlights.**

- Wire cable in accordance with DIN EN 12385, generally round strand cable, standard 6 x 19 FC in accordance with EN 12385-4, with approval
- **Short-linked chains** with approved appurtenances, quality class 8 in accordance with DIN 685, with approval
- Textile span sets in accordance with DIN EN 1492, with approval and indication of carrying capacity with the use of an additional safety facility (safety cable) made of wire cable or chain
- Aluminium or steel clamps which are approved for the respective traverses (appurtenances).

### ■ Permissible carrying devices:

- Chain motors in accordance with BGV C1
- Chain motors in accordance with BGV D8 with wire cable or chain "hung dead" (parallel load-carrying to bypass the motor)
- D8 Plus chain motors in accordance with IGVWSQ P2 with overload monitoring.

**Nominal load: see manufacturer's specifications.**

### ■ Permissible means of fastening

Nominal load at 0.5 times the carrying capacity value indicated by the manufacturer and not exceeding one tenth of the minimum breaking force.

- Shackles, straight and curved, quality class 6, in accordance with E DIN 13889, with indication of carrying capacity; for dynamic loads (e.g. suspension of loudspeakers), only with safety split pin or retaining nut
- Quick-connection element with clamping nut (quick link) in accordance with DIN 56 926, with indication of carrying capacity
- Cobra fork head hooks – only in connection with chains in accordance with DIN 685
- Turnbuckles with closed eyes, e.g. in accordance with DIN 48334, with indication of carrying capacity; for dynamic loads (e.g. suspension of loudspeakers), only with safety split pin and retaining nut
- "O" rings, closed, with indication of carrying capacity.

### ■ Permissible cable end connections

- Rope sockets (symmetrical) in accordance with EN 13411-7; for dynamic loads (e.g. suspension of loudspeakers), only with rope clamp (eccentric) in accordance with DIN 1142
- Asymmetrical rope sockets (wedge end clamps) in accordance with EN 13411-6; for dynamic loads (e.g. suspension of loudspeakers), only with rope clamp (eccentric) in accordance with EN 13411-5
- Wire rope clamps in accordance with DIN 3093, only with cable eye stiffener in accordance with DIN 3090 or Flemish eyes in accordance with DIN 3095

### ■ Impermissible means of attachment

- Wire cable without approval
- Covered wire cable
- Long-linked chains (inner length of the link > 3 times the nominal diameter of the chain material)
- Untested chains
- Cable binders
- Textile span sets without approval and indication of carrying capacity, or textile span sets in accordance with DIN EN 1492, with approval and indication of carrying capacity but without the use of an additional safety facility made of wire cable or chain
- Damaged means of attachment (e.g. kinked cables, span sets with damaged covering, span sets without label/tag)
- Wire cable holders (with the exception of ones with a BGV test certificate sticker and following consultation with the relevant MMG contractor).

### ■ Impermissible carrying devices

- Chain motors in accordance with BGV D8 without safety cable (i.e. not "hung dead" in the wire cable or chain).

### ■ Impermissible means of fastening

- Carbine swivels, unscrewed
- Carbine swivels, screwed
- Open hooks
- Turnbuckles in open form in accordance with DIN 1480
- Quick-connection element with clamping nut (quick link), without indication of carrying capacity
- Textile span sets as connections between two cross-beams
- Further means of fastening without indication of carrying capacity.

### ■ Impermissible cable end connections

- Rope clamps (eccentric) in accordance with EN 13411-5
- Rope clamps (eccentric) in accordance with DIN 741.