



**Construction Plant-hire Association**

Tower Crane Interest Group



***Tower Crane Technical Information Note***

**TIN 043**

**Design and Design Checking of Attachment Brackets for Tower Crane Accessories**

This Technical Information Note deals with the design and design checking of attachment brackets for tower crane accessories such as anemometers, signs and aircraft warning lights. It does not cover attachment brackets supplied by the tower crane manufacturer, either as part of the original supply of the crane or subsequently.

**1.0 Design**

**1.1 Design Standards**

All attachment brackets should be designed by a competent engineer using an appropriate crane design standard such as BS 2573, DIN 15018, FEM 1.001 or EN 13001. The designer should choose the standard with which they are most familiar.

**1.2 Design Loads**

All attachment brackets should be designed taking account of the worst case loads likely to be experienced by the bracket, in and out of service. These are likely to be dead loads due to the mass of the accessory being supported, dynamic loads due to movement of the crane (possibly including wind induced vibration) and wind loads, both in and out of service. Out of service wind loads should be calculated in accordance with FEM 1.005.

The foregoing is an indicative list and the designer should carry out their own analysis to determine the appropriate loads. Design for fatigue will not normally be required, unless the bracket is subjected to wind induced vibration.

**1.3 Manufacturer Consultation**

The crane manufacture should be consulted to ensure that the crane structure will safely absorb the loads imposed by the bracket.

**1.4 Installation**

The designer should consider the installation of the bracket and design it in such a way that the risks of personnel, the bracket, accessory, fasteners and tools falling during installation are minimised.

**1.5 Fabrication Information**

The design should include fully detailed drawings giving material specifications, weld details, corrosion protection and manufacturing inspection requirements; together with any necessary installation procedures.

**2.0 Design Check**

The design should be checked to Category 2 of Table 1 of BS 5975:2008+A1:2011 *Code of practice for temporary works procedures and the permissible stress design of falsework*.

**3.0 User Duties**

Users should ensure that brackets are not used for purposes for which they were not designed.

**4.0 Sourcing Design Standards**

British and European Standards can be obtained from the BSi shop at <http://shop.bsigroup.com/>

DIN Standards can be obtained from DIN at <http://www.din.de/en>

FEM Standards can be obtained from the FEM shop at <http://fem.vdma-verlag.de/>

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