



KEE KLAMP LIMITED



INSTRUCTIONS FOR THE DESIGN OF STRUCTURES AND FOR THE INSTALLATION AND USE OF KEE KLAMP AND KEE LITE FITTINGS (together "FITTINGS")

THE DESIGN OF STRUCTURES WITH FITTINGS

Fittings are made from galvanised cast iron (Kee Klamp) or aluminium alloy (Kee Lite) and are supplied, as standard, with coated and hardened steel grub screws. They are suitable for use in the construction of tubular structures using standard galvanised steel or aluminium tubes.

Designers must be satisfied as to the fitness for purpose of such a construction and must refer to the current releases of the following standards or parameters, as applicable:-

Limit state design parameters must be used.

Pin joint assumptions must be made for all fittings except those specifically classified as fixed joints: types 62, 63, 64, 65, 66, 67, 68 or 69. Cross bracing may be required to ensure the stability of structures, especially racking, and to protect from accidental impact, for example from fork lift trucks. See EN 14122 (Safety of machinery).

Note: National standards also apply: BS 5395 (Stairs, ladders and walkways); BS5950-1 (Structural use of steelwork in buildings); BS 6180 (Barriers in and about buildings); BS 6399 (Loading for buildings); BS 7818 (Pedestrian restraint systems). Building regulations parts K & M and reports issued from time to time by the Health & Safety Executive.

Fittings are designed for use with tube to EN 39 (scaffold tube), EN 10210-1 (structural steel), ISO 65/BS 1387 (gas tube) and EN 755/BS 8118 (aluminium tube).

When designing structures with vertical and horizontal members which cross within a fitting, tube continuity must be maintained for the vertical, unless there is a specific structural reason to do otherwise.

Anchors and fixings must be specified to take account of the fixture thickness and design loads according to the manufacturer's recommendations.

Attention must be paid to the nature, mechanical properties and condition of the civil structure or substrate to which the structure is to be fixed to ensure its ability to withstand the design loads.

Consideration must be given to the environmental conditions (eg: saline, cyclical loads or vibration), which the structure will have to endure in service, and the possible implications for service life and the need for regular inspections to check the integrity and condition of structures and the tightness of grub screws.

Fittings must not be used in scaffolding.

Fittings must not be welded.

If in doubt, consult Kee Klamp Ltd. for further advice.

GENERAL INSTRUCTIONS FOR THE USE OF FITTINGS

All grub screws must be tightened to 39Nm. Always ensure that the pointed, cutting end of the grub screw is placed against the tube and that the flat end is away from the tube.

Wherever possible, Fittings should be assembled with the open faces of grub screws pointing downwards (or horizontally) to minimise collection and retention of rainwater etc.

Do not re-use grub screws; replace with new grub screws from Kee Klamp Ltd.

Do not modify Fittings; do not use Fittings which are (or appear to be) damaged or defective in any way.

Do not mix Kee Klamp or Kee Lite Fittings with other brands, use only genuine Kee Klamp or Kee Lite Fittings to which these Instructions relate exclusively.

SPECIFIC LIMITATIONS ON THE USE OF FITTINGS

'A' pre-fix add-on types	Ensure tapered pins are inserted through both sets of lugs and tapped securely into place before tightening the grub screws.
C,F,M, Prefix Swivel Types 19, 50, 51, 52, 53, LB54 and 58	Must not be used to support bending loads; entire structures must not be constructed from swivel Fittings for reasons of stability.
Types 14 and 18	Must not be used to join top and mid rails within the same bay, not more than one joint is allowed between structural supports. Note: BS 5395 does not permit a joint to be further than 150mm from a structural support.
Type 16	The hex head bolt is for retaining purposes only and must be torqued up to 15Nm
Type 18	Must not be used for structural joints or to take a tensile load.
Types 58, 60 and 61	Must not be used as base flanges to support guard railing or balustrades
Types 62, 67 and L148	Must be used with fixing holes orientated in line with the applied load for maximum resistance.
Type 63	Suitable only for lightly loaded applications; otherwise use type 62 with a cranked upright.
Types 68 and 115	When used with spacers, maximum fixture thickness must be in accordance with the fixing manufacturer's recommendations.
Type 70	Must not be used as a side-fix balustrade flange; use type 64, 68 or 115.
Type 72	If used in a permanent or high load application, the type 72 must be drilled and pinned to prevent rotation on the tube.
Types 78 and 83	When used as top and bottom pairs in gate hinges, the pins must be orientated in opposite directions to ensure gate retention.
Types 81 and 82	Must be used with the retention clips as supplied.
Joining of tubes within Fittings	Tubes must not be joined within any barrel having only one grub screw unless first secured with a type 18 splice.
De-burring of cut tubes	In order to avoid the danger of cuts or snagging, cut ends must be de-burred, especially when used with types 18, 77 or 84.

NOTE REGARDING PART NUMBER NOTATION

Fittings with an "A" pre-fix are split to allow structures to be Added to without dismantling the original structure.

Fittings with a "C" pre-fix are Combination (swivel) Fittings usually assembled from "M" (male) and "F" (female) Fittings; special instructions apply, see above.

The "L" pre-fix denotes aluminium alloy (Kee Lite) Fittings to differentiate them from the traditional iron Fittings.

TRANSPORTATION AND STORAGE

There are no particular limitations as to transportation and storage of Fittings other than they should be kept in a dry and ventilated environment.

ALWAYS REFER TO THE KEE KLAMP FITTINGS MANUAL OR TO THE WEBSITE (www.keeklamp.com) FOR FURTHER INFORMATION ON THE USE OF FITTINGS AND THEIR ASSEMBLY AND INSTALLATION. IN CASE OF DOUBT, ASK KEE KLAMP LTD OR YOUR LOCAL AUTHORISED KEE KLAMP DISTRIBUTOR.



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