



## All Steel v3 Highway Grid Installation Guidance

### 1. Preparation

Read this guide before starting. In particular consider the following:

- **Design** - This installation guide is for our standard all steel v3 highway grid and not our drop-in design highway grid.
  - *Standard Design = Pier supports are welded to the grid top and therefore removable for maintenance purposes. The Kerb frame will remain fixed in the ground following installation.*
  - *Drop-in Design = Pier supports and the kerb frame are welded together and will remain fixed in the ground following installation. The grid top alone will be removable for maintenance purposes.*
- **Lifting** - Lift the grid with 4 leg chains looped under the grid bars. Do not lift from any other points. Ensure that the safe working load of slings and lifting gear are adequate. The grid weight will be stated on the delivery note.
- **Drainage** – There are two options. You may make use of the drainage holes in the sides of the kerb frame. Alternatively, drain(s) may be set into the base; eg. Pre-fabricated road gully with an outlet or perforated land drain.
- **Guard Fences** – Side fencing is employed to keep livestock away from the grid. Consider the position of the fence posts and their method of fixing. Further excavation may be required, and/or you may wish to set some of the fence posts into the concrete apron surrounding the grid.
- **Signage** – Suitable warning signs should be used.
- **By-Pass Facility** – In most circumstances, a gated livestock by-pass lane would be required.
- **British Standard** - Refer to BS4008 2006 for further information. A summary is available from our website under the technical data heading.

### 2. Excavation / Dig Dimensions (indicative only)

Length (direction of the road) = overall grid length + minimum 600mm

Width (across the road) = overall grid width + 300mm

Depth = 300mm clause 803 sub-base + 300mm concrete base + 360mm for grid\*

\*the top surface of the installed grid should be flush with the road surface. Depth measurements assume an even road surface and an even concrete base. The 360mm grid depth includes a 5mm allowance for epoxy bedding adhesive.



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### 3. Prepare Aggregate Base

300mm clause 803 aggregate base. Drainage: eg. To road gully system

### 4. Prepare Concrete Base

300mm reinforced concrete. Eg. 1 layer A252 mesh, C40 mix to BS8500.

### 5. Fitting the Grid / Kerb Frame

Once the concrete base has fully cured. The grid and kerb frame are supplied pre-assembled. Larger grids are supplied in two, pre-assembled halves. The grid(s) are fixed to the kerb frame with M16 nuts and bolts. These nuts and bolts are to be replaced with galvanised ones when fitting. (see installation point 6.)

- Apply 5mm\* epoxy mortar to the underside of the kerb frame, taking care not to coat the support beams.
- For larger grids which are supplied in two, pre-assembled halves, also apply epoxy mortar to the underside and mating surfaces of the central support channels – these form part of the kerb frame.
- Lower the pre-assembled grid and kerb frame onto the prepared base. For larger grids, lower each half in turn.
- Bolt the kerb frame down onto the concrete base using M16 resin studs or expansion fixings. Use at least two fixings per section of kerb frame. The kerb frame is fitted with redundant fixing points should you drill into the reinforcing mesh.
- Mark the concrete base to indicate the position of each grid support beam. These markings will then be used once the grid is removed, to apply the relevant thickness of epoxy mortar.
- Once the kerb frame is secure - unbolt the grid sections and set to one side.

*\* The relevance of the epoxy mortar is to take out any unevenness in the concrete, ensuring that when the grid is fully installed, there are no gaps/movement under the support beams. The 5mm is therefore only a suggestion. Refer to the manufacturer's data sheet for full instructions.*



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### 6. Re-Fit Grid

With the grid(s) removed:

- Apply approximately 5mm\* of epoxy mortar to the concrete base, in line with the position of the support beams.
- To prevent the grid adhering permanently to the base, cover the mortar with plastic film.
- Replace the grids, making sure that both grids are secure and correctly positioned. The grid should be fixed to the kerb frame with the new galvanised M16 nylocs supplied.
- Make sure the grid is correctly positioned and all bolts are secure.
- A further inspection is required 24 hours after commissioning to check and re-tighten if necessary.

Once the epoxy mortar has cured –

- Remove the excess plastic film
- Connect drainage

### 7. Fix the Guard /Side Fencing

- Fix the side fencing and signage and hedgehog ramp.
- Backfill around the steel kerb frame with concrete c/w reinforcing as deemed appropriate. Reinststate to ground level.

To complete installation, please refer to the maintenance schedule, downloadable from the website to complete your installation.

*Please Note:*

*This installation guide describes a typical highway installation. Please refer to BS4008 2006 for general guidance on siting, by pass facilities and side fences etc.*