Access Chamber Solutions

RADIUS CTS

QuadBox®

Installation Instructions

QuadBox® has been designed for strength, versatility and rapid installation.

Important Guidelines

The QuadBox® range of Modular Joint Boxes satisfy the requirements of EN124 Class B125, C250, D400* and BT specification LN688

Quadbox™ is suitable for use in the grass verges of roads, footways, pedestrian areas, car parking areas and slow moving traffic areas such as access roads. It is NOT normally recommended to be installed in the surface of normally trafficked highways where fast moving vehicles have access due to the unknown long term effects of cyclic loading on plastic chambers

If necessary for carriageway installation it is advised that the installer ensures a reinforced concrete C40 base, a full backfill surround of C40 concrete and an adequate cover slab that will, during operation, dissipate the top-load around the backfill and not directly onto the chamber. Final criteria to be verified by your structural engineers.

A frame and cover meeting the requirements of EN124 Class B125 or greater as specified must be used

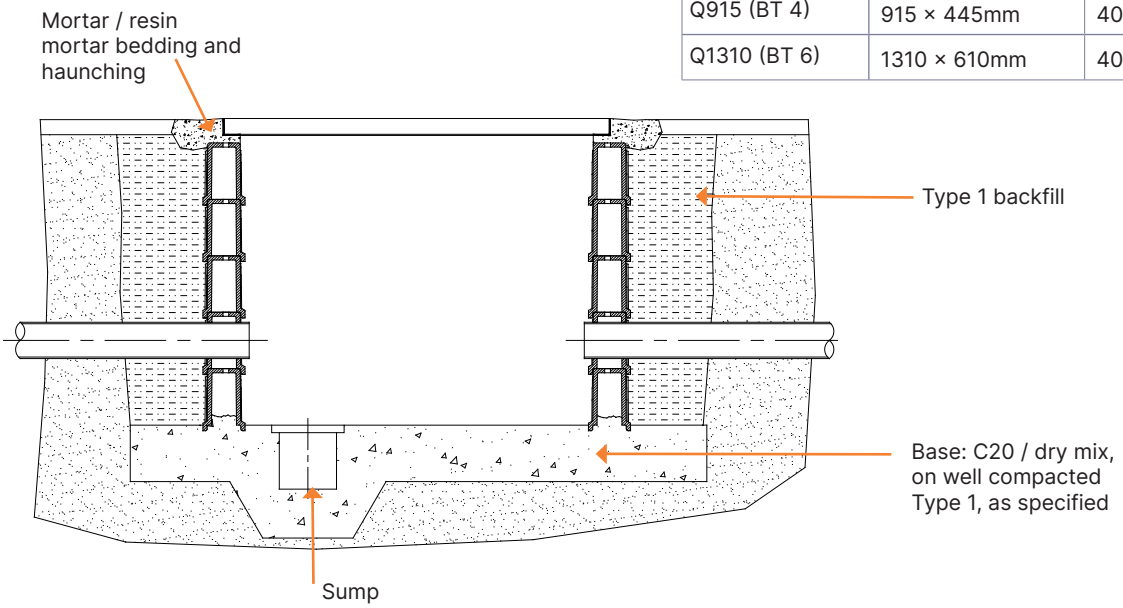
Throughout the installation process, the site shall be properly signed and guarded

All other safety precautions required by legislation, the customer and as specified by the contract, local authorities, other landowners and the police must be observed at all times.

1. Chamber Dimensions

Chambers rings are supplied at a standard depth of 150mm and are stacked in order to achieve the required chamber depth. The range of QuadBox® sizes are set out in the table beside:

Product	Clear Opening	*Top Load Rating
Q300	300 × 300mm	12.5t (Class B125)
Q600	600 × 450mm	12.5t (Class B125)
FW1 (VM)	550 × 315mm	12.5t (Class B125)
Q725 (BT 2)	725 × 255mm	25t (Class C250)
Q915 (BT 4)	915 × 445mm	40t (Class D400)
Q1310 (BT 6)	1310 × 610mm	40t (Class D400)



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2. Duct Entries

Where possible, drill the duct entry holes before installing the chamber. A heavy duty, long reach hole saw, for use with an electric or air drill is ideal. Alternatively, a general-purpose hole saw can be used.

The rings are marked with duct positions that ensure correct duct spacing and accurately aligned holes. Locate the pilot drill in the centre, mark and then drill at a moderate speed so as not to generate excessive heat.

Drill through both walls or, for precision alignment, drill separately from the inside and the outside using the drill centre marks.

It is possible to drill duct entries in any location compliant with required clearances and separation standards. This includes drilling through the joint between two rings.

3. Excavation

Using a QuadBox® ring as a guide template, mark an area all round the outside, sufficient to allow for satisfactory backfilling and compaction around the chamber. Within the marked area, excavate from the lowest point of the footpath surface to the total depth of the chamber. Allow additional depth for the base (150mm), for the frame and cover (50mm) and for the mortar bed (15mm).

An improvised depth gauge is useful at this point to determine the correct depth of excavation.

Using a broom handle or a piece of timber, place an initial mark at a depth of 215mm (to allow for the depth of the frame and cover and mortar) and then at 150mm intervals. Placing a straight edge across the measuring gauge will then determine the correct excavation depth.

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4. Chamber Base

The chamber base can be constructed using one of the following methods.
Compact the material in the base of the excavation and:

- Place 50mm of dry mix concrete on 100mm of compacted Type 1
- Place and compact 150mm of Type 1 material (to clause 806 of the Highways Agencies CDHW)
- Install a 150mm deep concrete base (C20 or dry mix)
- Place 50mm of ready mix concrete on 100mm of compacted Type 1

Where an existing chamber has been demolished and rebuilt using a modular chamber, the existing floor can be used as a base provided it is structurally sound.

The floor must be finished using a float and trowel to achieve an even surface sloped slightly towards the sump grating (where required).

5. Optional Plastic Floor

A factory fitted plastic floor is available, either screwed in place or drop-in as required. The floor can incorporate provision for a sump if specified.

6. Installation of Rings

QuadBox® can be installed, backfilled and reinstated in a single operation. Remember that the chamber will bed-in by approximately 10mm into a concrete base if the backfill is vigorously compacted.

Set the first segment level on the base, bedding it firmly in, and check that it is level. The segment should be tamped into the base to provide a solid foundation for the chamber.

Install the additional segments of the chamber (with due allowance for frame and cover installation) to the final depth ensuring that each layer is clear of debris and fully seated.

Levels should be checked at regular intervals throughout this process using a suitable depth gauge.

If levels have been calculated incorrectly, an additional ring can be cut to the correct depth using a standard wood saw. In these instances, the cut ring should be the topmost ring and the voids should be filled with resin mortar to provide a solid base for the frame and cover.

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7. Overbuilding with QuadBox®

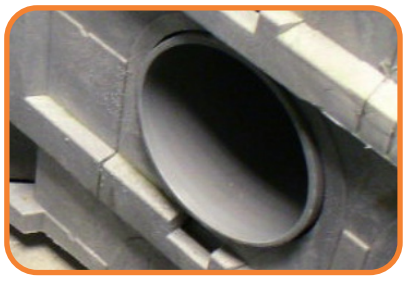
QuadBox® provides an efficient method for building chambers over an existing network, and for replacing chambers that have been damaged or need to be enlarged.

To build over existing cables or ducts, cut a suitably sized duct entry, see 'Duct Entries' section; then with a hand saw cut from the bottom of the ring to make an open bottomed arch. In these circumstances the opening should be improved by using excess resin mortar or concrete left over from the base construction. Alternatively, a ring may be drilled and then cut longitudinally for reassembly around an existing duct as shown in the photograph (below).

In instances where the ring is cut in half, it is essential that a complete ring is installed above and below the cut ring.

8. Benching

To bench over unavoidable obstructions, cut away the ring(s) as necessary and use C20 or dry mix concrete to encase the obstruction and form a firm seating for the chamber.



9. Security Covers

Secondary security covers (PPP) are available and will be supplied pre-fitted in the ring. The secure ring should always be installed as the topmost ring. It should be noted that padlocks for the security cover are not included in the secure access chamber kit.

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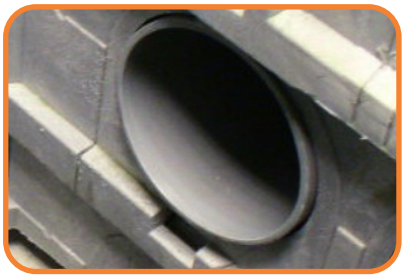
10. Termination of Ducts

If the duct entries have not already been drilled, a long-reach hole saw can be used to drill through from the inside of the chamber.

Ducts should be passed through and protrude into the chamber inner wall surface by 10mm and shall be square to the chamber wall. Any burrs should be removed.

If required, to ensure a seal against the ingress of fines and water, a proprietary brand of clear mastic sealant may be applied around each duct entry point both inside and outside the chamber.



11. Re-Instatement

Backfill to the chamber can be installed using one of the following methods:

- Compacting Type 1 or suitable 'as-dug' material in 150mm deep layers
- Using hand tamped lean mix concrete
- Using a self compacting material (such as pea gravel)

Self compacting materials can only be used up to the constructional layers of the footpath and where the void between the chamber wall and the excavation is 50mm or less.

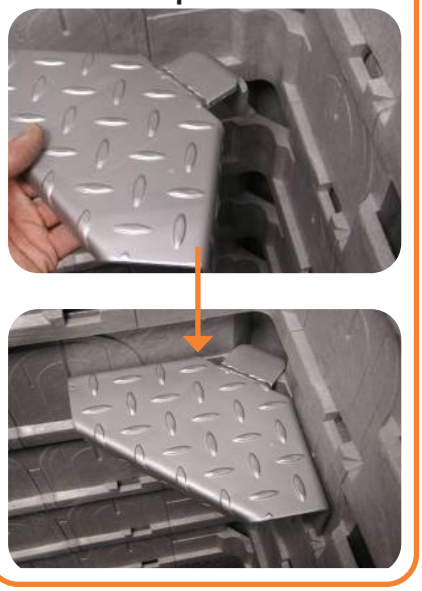
During compaction, it is particularly important to avoid over compaction or ramming the side of the chamber to the extent that it might disturb its position or cause the structure to bow to any degree.

12. Installation of Access Chamber Furniture

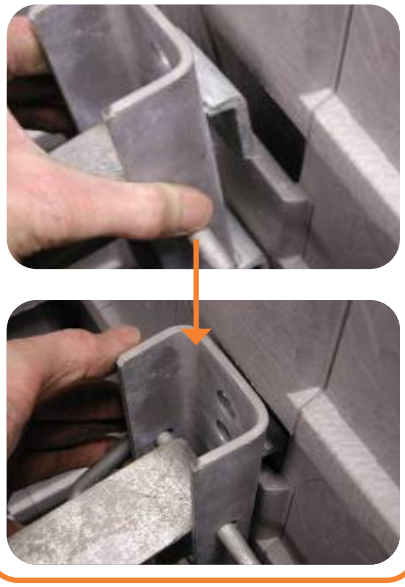
One of the novel features of the QuadBox® is the use of drop-in box furniture.

Install the specified furniture (e.g. cable bearers, brackets, steps) by slotting the purpose-designed fittings into the required positions.

Corner Step



Cable Bearer



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13. Frame and Cover Installation

A range of compatible frames and covers are available from your QuadBox® supplier. Installation should be carried out according to the specific instructions for the chosen frame and cover.

Pre-cast cover slabs can be used in conjunction with QuadBox®.

Place the frame and cover on the chamber prior to backfilling. Once compaction is complete, the cover can be removed and the frame mortared onto the chamber.

14. Raising / Lowering Existing QuadBox® chambers

Where it is necessary to raise or lower an existing QuadBox® installation, this should only be achieved by adding or removing rings. Where a box is to be adjusted by less than a full ring height, this should be achieved by cutting a full ring as explained in Section 6. Brick courses should **NOT** be added to QuadBox® installations.

For more information on the access chambers product range, please contact our sales team on:

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