



Specification for Installation of Quadbox

Modular Access Chambers JMF102, JMF104, JMF106

openreach

Installation Guide for use on BT Openreach networks only

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1 General information

The STAKKAbox™ QUADBOX underground access chamber is designed for strength, versatility and rapid installation.

QUADBOX is manufactured by Radius Plastics Limited and supplied by CUBIS Industries. QUADBOX is suitable for use in the grass verges of roads, and in footways, pedestrian areas and car parking areas. **It is NOT to be installed in the surface of normally trafficked highways where fast moving vehicles have access.**

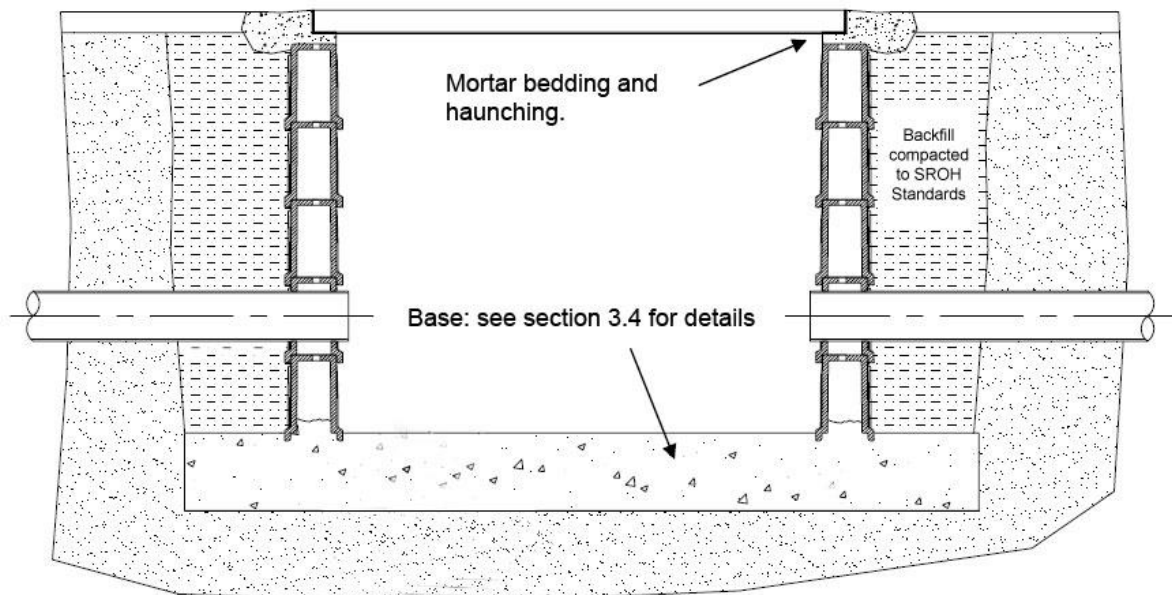
A frame and cover meeting the requirements of BS EN124:1994 Class B125 or greater as specified shall be used.

2 Safety

Throughout the installation process, the site shall be properly signed and guarded in accordance with the Safety at Street Works and Road Works code of practice (NRSWA 1991)

Additionally, all other safety precautions required by legislation, the customer and as specified by the contract, the Local Authorities, other landowners and the Police should be observed at all times.

3 Installation Procedure



Typical QUADBOX installation

3.1 Chamber Depth

Chambers rings are available at a standard depth of 150mm. Standard JMF104 is 4 rings deep, road crossing JMF104 is 5 deep, standard JMF106 is 5 deep and road crossing JMF106 is 6 deep. Customers should refer to their clients drawings and specs for relevant chamber dimensions.

3.2 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 available from the supplier, CUBIS Industries (Tel 028 3831 3100). Alternatively, a general-purpose hole-saw can be used. (98 or 102mm cutter for Duct 54)



QUADBOX is marked with duct positions that ensure correct duct spacing and accurately aligned holes. Locate the pilot drill in the centre mark and drill at 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. The maximum angle accepted for drilling holes is 45 degrees.



If an oversized drill is used or the duct entry is created using a hand saw, the open voids must be filled with C32/C40 concrete or mortar.

Note the secondary centre marks for positioning an array of smaller ducts

QUADBOX is available with pre-drilled holes if specified.

3.3 Excavation

Using a QUADBOX ring as a guide template, mark an area all round the outside, sufficient to allow for backfilling to SROH standards 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 concrete base (C32/C40) and for the frame & cover. For a 5-ring chamber the excavation depth is 965mm. Additional excavation is required local to the sump.

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

3.5 Installation of the QUADBOX

QUADBOX can be installed, backfilled and reinstated immediately after the base has been poured - there is no need to wait for it to cure. Remember that the chamber will bed in by approximately 15mm into a concrete base (C32/C40) if the backfill is compacted to SROH standards before it has cured.



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 the frame and cover installation) to the final depth ensuring that each layer is fully seated.

3.6 Overbuilding with QUADBOX

QUADBOX provides an efficient method for inserting chambers into 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.

Alternatively, a ring may be drilled and then cut longitudinally for reassembly around an existing duct. In these instances, it is important that a complete ring is installed above and below the cut ring. A bottom ring if cut vertically must be set into the concrete base (C32/C40) by 15mm.



A ring can be cut horizontally and vertically but not in the same ring.

3.7 Security Covers

Fixings for security covers are pre-installed in what should be fitted as the topmost chamber ring. It is **important** that this ring is installed last to allow for future installation of a secondary security system.



Where ordered, security covers will be supplied pre-fitted in the QUADBOX and should again be installed as the topmost ring. It should be noted that padlocks for the security cover are not included in the secure MJB104 kit.



3.8 Termination of Ducts

If the duct entries have not already been drilled, a long-reach hole saw (see section 3.2, above) can be used to drill through from the inside of the chamber.

The spigot end of the ducts shall be passed through and protrude into the chamber inner wall surface by a minimum of 10mm and a maximum of 25mm and shall be square to the chamber wall. Any burrs shall be removed from the ducts.

3.9 Installation of Access Chamber Furniture

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

Installing the
Corner Step



Installing the
Cable Bearer



3.10 Installing the Mobra

The Quadbox chamber has been designed to receive the Tyco Mobra 3A with the use of a kit available from the supplier.

Plug the two mounting tubes into the corner pockets at one end of the chamber. The tubes are normally hooked into the third ring down



Plug the Mobra bracket into the mounting tubes and push it firmly down

3.11 Re-Instatement

QUADBOX is designed as a structural chamber and does not require the use of concrete backfill (although concrete can be used to achieve a greater loading strength). As-dug material can be used in agreed applications; otherwise the use of Type1 aggregate is necessary.

Using Type 1 aggregate, compact the material in 150mm layers around the chamber using a powered compactor, taking extreme care to ensure that any ducts are supported adequately and that the line and level of the chamber is not disturbed from its seated position in any way during the re-instatement process.

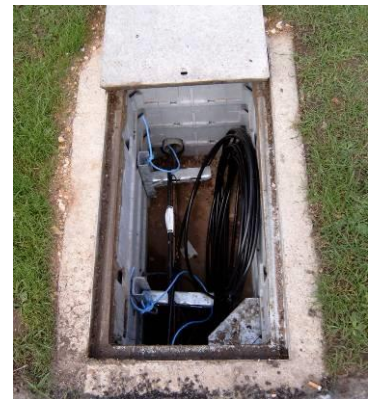
During the initial compaction around the chamber base, it is particularly important to avoid over compaction or ramming the side of the chamber to the extent that it might disturb its position.

Complete the re-instatement to the finished level, using the specified materials and in strict accordance with the re-instatement conditions.

3.12 Frame and Cover Installation

For grass verges and similar areas the frame can be either fitted directly onto the top surface of the QUADBOX, but should be secured with a 200mm wide mortar haunching at least 100mm deep or on a mortar bedding, maximum 50mm deep, with an angled haunch from the top edge of the frame tapering down to the edge of top ring.

Where the frame must be completely rigid, such as in pedestrian areas, the frame should be bedded on a layer of mortar (maximum depth 50mm) and the surround made good back to solid paving material.



Camber Adjustment

If the frame requires levelling to the ground surface, or to a newly raised surface level, rising frame units (as shown) are available as an option.



These should be used in conjunction with mortar to build the frame up to the required level. Where levels mean that the cover needs raised by more than the 50mm allowable mortar bed, bricks, quarry tiles etc. should **not** be used to adjust the height of the cover. A further Quadbox section should be cut horizontally (minimum depth to be a 40mm wall section), with the voids of the cut chamber filled with C32/C40 concrete or mortar.



3.13 Technical Deviation from Standard

A one ring chamber may be permitted for installation. Clarification should be from the relative Openreach planner prior to installation.

3.14 Customer Support

Should you require any further assistance please contact:

CUBIS

4 Silverwood Industrial Estate

Lurgan

Craigavon

Co. Armagh

BT66 6LN

T 028 3831 3107

F 028 3831 7770

E sales@cubis-systems.com

W www.cubis-systems.com

4. Appendix 1

4.1 Installation of locking covers on Quadbox

4.1.1 The locking covers can be installed onto the Quadbox, however an alternative fixing kit does need purchased.

4.1.2 Steel fixing bands are required to join the Quadbox sections together. This should be done in opposite corners.

4.1.3 Push the steel fixing band down through the slot of the top ring by approximately 50mm.



4.1.4 Fix the band to the second ring with one of the supplied self tapping screws.



4.1.5 Feed the remainder of the band down through the slots below and gently tap the band with a hammer to insure it is flush with the chamber wall.



4.1.6 Secure the fixing band to the bottom ring with a self tapping screw. Repeat process for opposite corner.

4.1.7 As per normal practice bed the cover on a mortar bed.

4.1.8 Bend down the fixing tabs against the side of the chamber and secure with self tapping screws (washers are required to insure that the screw grips the tab).



4.1.9 Repeat for the other tabs

4.1.10 Gently tap the ends of the tabs flush with the chamber wall.



4.1.11 Cover can now be installed and pavement reinstated.

5. Appendix 2

5.1 Installation of frame and covers on JMF 102, 104 & 106 in the soft verge

5.1.1 The Quadbox JMF 102, 104 & 106 chambers can be installed in the soft verge, with the main chamber installation the same as detailed in Section 3, however the standard frame should be substituted with the version used with the lockable frames and covers (frame with bolting lugs attached).

5.1.2 Fitting of Lockable Frame

The lockable frame when being installed on the Quadbox JMF chambers in the soft verge does not require a mortar bed, with the frame being place directly on top of the chamber.

Bend down the fixing tabs against the side of the chamber and secure with self-taping screws (washers are required to ensure that the screw grips the tab).



5.1.3 Covers

Only if security is required then it is necessary to fit the lockable covers, otherwise it is acceptable to fit the standard cover.

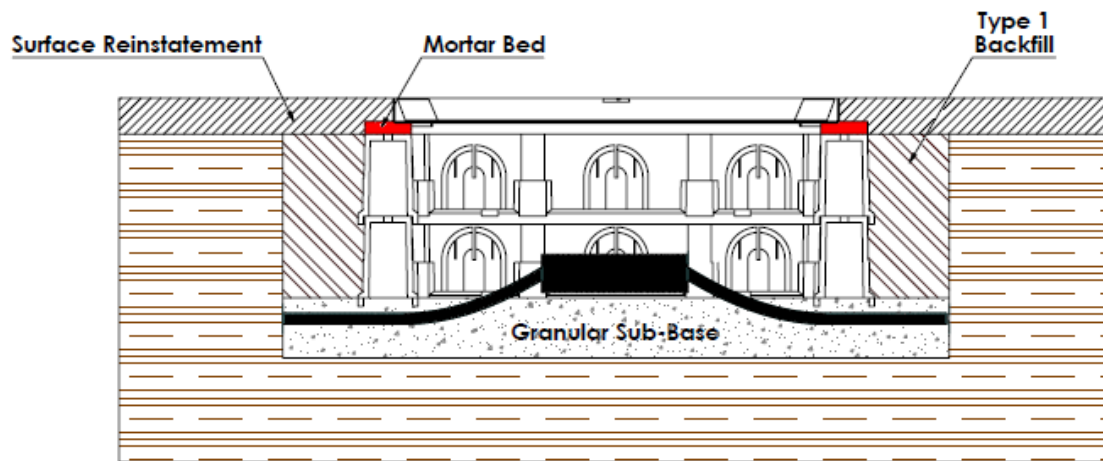
6. Appendix 3

6.1 Installation of shallow Quadbox JMF102 Chamber

6.1.1 The Quadbox JMF 102 chamber can be installed in permitted situations only 1 or 2 rings deep with cable entering through the floor.

6.1.2 Excavation

As per the standard installation, use a Quadbox JMF102 chamber as a template to mark out the area to be excavated. Allowing sufficient area around the chamber for the compaction equipment. The depth of excavation for a 1 ring deep chamber is 370mm and for a 2 ring deep chamber 520mm (this includes a 150mm base and 25mm mortar bed).



6.1.3 Chamber Base

The chamber base is constructed by compacting the base of the excavation and then place and compact 150mm of Type 1 material.



6.1.4 Duct Entries

Duct entry is preferred to be through the base of the chamber.

If this is not possible then notch the chamber section using a handsaw. The notch should be in the second section from the bottom.

Once the chamber has been notched it can then be placed over the cable creating a bridge effect. The cut should be deep enough for the chamber section to sit either on the base or on the bottom section and still maintain a gap between the cable and the section.



6.1.5 Installation of the QUADBOX

See section 3.5





6.1.6 Re-Instatement

See section 3.11.

6.1.7 Frame and Cover Installation

See section 3.12