



## **Installation Guide for Cast Ductile / Grey Iron BS EN124 Access Cover & Grating Assemblies used in New-build construction sites**

In the following installation guidance document, all descriptions are as defined under BS EN124, BS9124, HA104/09 and/or FACTA Standards. In the case of conflicting descriptions, the Standard or Specification relevant to the product material and size will prevail.

All site operatives responsible for installation shall have experience with the type of products being installed, and shall ensure familiarisation with the intended foundation and surfacing materials intended. Where any doubt exists, the respective manufacturers should be consulted for installation advice.

In all cases of cast iron access covers and gratings; precautions should be taken to prevent operatives from deliberately or accidentally exchanging cover elements between product assemblies. Similarly, covers or gratings removed from their frames should always be placed back in the same orientation in their original frames. Failure to control and implement these important practices may lead to access covers or gratings being installed in incompatible frames, resulting in mal-operation.

*N.B 1: Where the use of a bedding mortar is referred to, it is intended to reflect the use of a high-performance, Polyester Resin material used as the primary, frame-encapsulation and bedding mortar. Instarmac's PY4 is an example of one such Mortar, although, alternative equivalent (or superior – in terms of tensile/flexural capability) Mortars may be used. Cementitious mortars may be used but it is now generally accepted that these mortars are inferior to their Polyester Resin counterparts for applications involving tensile and flexural forces.*

*N.B 2: Where the use of proprietary Packing Plates are referred to, it is intended to reflect the use of foundation-sympathetic, stackable packing pieces with road-opening support wedges. Wrekin's \*UniPak™ is an example of one such design, although, alternative equivalent or superior packing pieces may be used.*

### **1. PREPARATION**

*N.B 3: The following assumes that the supporting structure is of adequate strength and condition to support the new cover & frame and expected loading.*

- 1.1 Ensure the Clear Area of the access cover or gully grating frame component is the same or larger than the chamber top opening but does not result in any cover or grating support ribs fouling on the chamber top. An exception may be made when;  
(i) Proprietary Packing Pieces can be stacked to form a suitable Clear Area opening within the overall depth available and/or (ii) where the product's cover-to-frame seating positions are located well-away from the frame Clear Area opening and sit over the intended chamber wall, slab or proprietary Packing arrangement.
- 1.2 Where available, ensure an area 50mm (min) greater than the frame size around the chamber top opening is clean, dry and clear of any loose debris, but not smooth.

Indeed, if this area is not already of sufficient surface texture to mechanically ‘key’ with the foundation mortar; abrade the surface locally, to achieve this aim.

## 2. INSTALLATION

- 2.1 Taking into account the expected finished road/pavement depth, the product frame depth and its flange width; install any necessary proprietary Packing Pieces to fill the majority of the underlying frame void, interleaving each Packing Piece with bedding mortar to ensure a robust, void-less construction.

*N.B 4: Mix and lay the foundation mortar product strictly in accordance with the manufacturer’s recommendations, including making provision for any specific preparations (which will supersede any conflicting preparations described in this document). Partially-used tins or packs should not be used. Take care to avoid dropping loose mortar material into the chamber shaft or contaminating the frame seats.*

- 2.2 Fill the remaining ‘under-frame-gap’ with bedding mortar and place the product frame onto this freshly-laid mortar, ensuring no voids are trapped in the mortar. The mortar placement should exceed the perimeter of the frame flange by a minimum of 50mm (nominal). Figure 1 refers.



**Figure 1**

- 2.3 During frame placement, ensure that the frame Clear Area is centralised over the chamber opening.

*N.B 5: In the case of highway kerbside gully gratings, the location of the frame will be dictated by the kerb against which it is intended to sit, in which case, this may not be central to the chamber Clear Area.*

*N.B 6: When dealing with heavy-duty Ironwork, it is recommended operatives employ the use of mechanical lifting devices wherever possible. Also, during installation, cover products spanning large areas should be lifted and handled in a balanced manner to ensure that flexing during lifting does not over-stress or damage any part of the product. Suitable lifting provisions will have been made in the product for such lifting techniques.*

- 2.4 Gently ‘tamp’ the frame into the underlying mortar to align the top edge of the frame level (within +5/-5mm) with the expected finished F.F.L., wearing course or pavement surface.

- 2.5 Add additional bedding mortar on top of the frame flange in order to completely envelope it to a minimum depth of 15mm, ensuring that this layer of mortar completely merges with the mortar extruded around and through the frame flange and any apertures. Figure 2 illustrates the complete frame encapsulation with bedding mortar.



**Figure 2**

*N.B.7: Polyester Resin Mortars have a relatively short Workable-Life in the mixed condition and as such this must be taken into account during the Packing-Piece and Frame installation phase.*

2.6 This additional layer of bedding mortar should not be trowelled smooth so that it will mechanically key to subsequent road-fill materials. An example of a typical ‘textured’ finish to a sub-base is illustrated in Figure 3.



**Figure 3**

*N.B.8: If frame fixing anchors are to be used in conjunction with a bedding mortar, drilling or hole-forming to receive same should only occur when the bedding mortar has fully cured. Where products are supplied with accessory parts or fixings for separate fitment to the chamber top or walls, the installation operatives shall ensure that their fixing location is appropriate to receive the fixings and expected loads. E.g. Removable Support Beams, Wall-fixed Support Beam Pockets, etc... Wrekin covers are not supplied with fixing anchors unless expressly described in our Tender return.*

2.7 Before the remaining road-fill materials are applied, heavily-coat the outside exposed vertical face of the frame with a proprietary Cold Joint Sealer. A typical illustration of this is shown in Figure 4.



**Figure 4**

*N.B.9: The application of a Cold Joint Sealer is particularly important if the frame is to be located in a concrete road or pavement.*

- 2.8 Install the remaining road-fill and wearing course/pavement materials around the frame taking care not to disturb the frame, particularly where mechanical equipment is employed.
- 2.9 Apply a joint sealer to the joint between the frame and surrounding wearing course/pavement, taking care not to contaminate the cover or its frame seatings.
- 2.10 Ensure that trafficking of the finished installation does not occur before the bedding mortar and surrounding surfacing materials have fully cured.

### **3. CARE & MAINTENANCE**

- 3.1 Generally, all-iron, non-hinged, access cover and gully-grating products do not require routine maintenance for the lifetime of the product, other than ensuring any lifting keyways are clear. For specific guidance on assessment of installation condition, refer to the WRc Inspector's Guide to Street Ironwork for the UK Water Industry CP373a/P8669.

\*UniPak<sup>TM</sup> is a Trade Mark of Wrekin's Patent-Applied manhole cover modular stackable support system. Availability of this system is expected mid-2013.

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