

The Technical Solution to Ironwork Reinstatement

Epiflex Confil Bedding Mortar patch Bedding Mortar Nunatch RM H4104



www.nufins.com



About Us

As part of USL Group, Nufins has supplied materials to numerous projects since 1966 including power stations, water treatment schemes, ports, airfields, highways, bridges and tunnels. We take innovation seriously and we believe that this is necessary for a manufacturing company to prosper in our highly competitive industry. Nufins' investments in our laboratory and production facilities have enabled the development of innovative products, thereby helping to improve effectiveness and efficiency on construction sites.

Nufins has a global reputation for manufacturing and supplying high quality specialist products for highway maintenance, waterproofing, structural grouting, joint-sealing, corrosion control, concrete repair and protective coatings for concrete structures. For further information visit our interactive website **www.nufins.com**

Industry Accreditation

Nufins recognises the importance of membership to industry-affiliated specialist organisations, allowing us to keep in close contact with latest industry developments. We work in partnership with architects, consultants and contractors to improve product technology, quality and performance, thus benefiting all stakeholders in all aspects of the construction industry.

Materials are manufactured under the ISO 9001 Quality Management Scheme. All products for use in the repairs and protection of concrete structures are tested in accordance with BS EN 1504 and carry the CE label, thus providing Nufins' customers with confidence in the quality and reliability of our specialist product range.







OUR COMPLETE RANGE

Concreting Chemicals Concrete Repair & Technical Mortars Concrete Protection Structural Grouting & Anchoring Bedding Mortars & Streetscape Joint Sealants & Fillers Industrial Flooring High Friction Surfacing & Waterproof Coatings Leak Sealing & Resin Injection Adhesives & Cleaning Surface Mounted Tactile Paving Accessories

Ironwork Failure



As with other elements fixed into a carriageway surface, and in order to achieve long term function, ironwork or composite plastic manhole covers, gullies and channel-drain, need to be bonded to the substrate and locked into position. Along with thorough and correct preparation of the transition slot with a stable base, it is vital to select the correct type of bedding and slot-filling materials to form the transition strip around the ironwork.

If ironwork units are insufficiently bonded, or if the wrong type of bedding and slot materials are utilised, damage caused by vehicular-percussion will destabilise the unit and lead to a breakdown of the transition strip.



Traditionally used types of ironwork bedding materials have some excellent physical and technical properties which provide solutions for certain applications, but they also have inherent weakness which yields a relatively short service life, particularly where ironwork is subjected to extremely heavy vehicular loading. Whilst some manufacturers have recognised that a pourable self-compacting transition strip material is an improvement on stiff, trowellable materials, what hasn't been grasped is the fact that some materials are just not fit for purpose because they are not designed to absorb shock, nor tolerate the types of dynamic loadings and movement exerted around ironwork installations.



The Technical Solution



Suitable for use with ironwork or composite channel-drain, gullies, frames and covers. When installed correctly in accordance with our guidelines, this innovative system avoids early collapses and pothole development.

Product selector



Applications

- Carriageways
- Car park decks
- Tunnels
- Port Facilities

- Distribution yards
- Rail crossings
- Airfields

Epiflex...



...the Innovative & Technical Solution to Ironwork Reinstatement

Transition strip materials should demonstrate high interface bond strength and be sufficiently compacted to exclude voids. It has been demonstrated on carriageways with paved-surfacing, that locking setts into position is of critical importance, using a flexibilised, high performance, non-porous, void free, gap-filling material.

This principle is not dissimilar to the type of engineering employed by our parent company USL Bridgecare, for installing transition strips on bridge expansion joints. There are certain types of material that USL would never use to install ironwork in a carriageway, because they've been tried; if materials are too hard or too soft, they will break down. The technical characteristics of the transition strip material should be such that it absorbs shock and accommodates the differential movement between elements such as concrete, asphalt, and metal. By ensuring that the transition material is well bonded to all elements including the substrate, this allows all dynamic loads to be distributed evenly.

Furthermore, sound, intimate bond performs the essential function of creating watertight interfaces. Water is additionally excluded by bringing non-porous transition material up to the running surface (incorporating a high-friction surface finish), in lieu of the traditionally installed asphalt wearing course. In doing so, this eliminates water ingress and thereby the destructive forces of freeze-thaw and of hydrostatic action, caused by vehicular loading on trapped water below the wearing course, or elsewhere within the transition strip.

EPIFLEX is the technical solution to ironwork and composite unit reinstatement

When installed correctly, a maintenance free service life of up to 20 years will be achieved





Confil Bedding Mortar

Polyester Bedding Mortar

Description

An extremely versatile two pack polyester bedding mortar which exhibits a very fast set and rapid strength gain surpassing the average strength of concrete within 1 hour. Ideal for the bedding of manhole frames, bollards and other street furniture, where the rapid set allows the minimum of disruption. In addition Confil Bedding Mortar has been designed to comply with all strength requirements of Highway Works Specification HA104 & HD27/15 3.11. Complies with requirements of EN1504-3.

Features

- Rapid curing
 High early compressive, flexural & tensile strengths
 - Excellent chemical & water resistance
 - Available in Summer & Winter grades



Benefits

- Economic use; mixed as needed & very little wastage
 Supplied in polythene buckets, which act as mixing vessels
 Simple mixing ratios
 - Will cure down to 0°C







CE

Epiflex

Resin Mortar Transition Strip & Gap Filler

Description

Epiflex is a versatile three component, cold-applied epoxy-urethane resin mortar. Typical uses include transition strips in car park joints, carriageways, tunnels, distribution yards, rail crossings, airfields and port facilities, as well as filling of voids and joints in concrete, stone and granite elements. Suitable for use on pedestrian or vehicular trafficked areas and complies with Highways Agency Specification for Highway Works. Epiflex is flexibilised, non-shrink and is tolerant to damp surfaces. It will provide high bond strength to a variety of materials including asphalt, concrete, stone and has excellent adhesion strength even to non-porous surfaces such as steel & polyethylene plastic. It may be used as an 'unfilled' two part system for narrow gaps or 'filled' three part system (as standard) for wider gaps.

Features

- Cold-applied, pourable transition mortar
- Extremely low Modulus of Elasticity in Flexure
- Exceptional bond strength to asphalt, concrete, stone, metal & composite units
- Waterproof & non-shrink
 - Resistant to freeze/thaw, road salts & fuel oil





- Self-compacting & absorbs shock
- Accepts differential movement between concrete, asphalt and metal & distributes loadings evenly
- Hard wearing, durable and long lasting; resolves repetitive reinstatement problems
- Maintains deck waterproof coating integrity
 - Improved safety for road users including cyclists







CE

Case Studies



Channel Drain Reinstatement; TfL Liverpool Street Bus Station

At Liverpool Street Bus Station, PDS Envirochannel drainage units were set to height using Confil Bedding Mortar and the transition slots were then filled up to the running surface with Epiflex.

Epiflex is a flexibilised, self-compacting, resinous material that develops high bond strengths to metal, asphalt and concrete. Loading and stresses between channel drain and all types of substrate are evenly distributed by this waterproof material, thus eliminating water ingress. A waterproof transition mortar was critical for this application, since Liverpool Street Rail Station concourse is situated immediately below the Bus Station road deck.

The loadings exerted by double decker buses are known to be the heaviest in the UK and the location was subjected to almost continuous trafficking.

Channel Drainage; Morrisons Store Car Park, Blaydon

For this mezzanine car park deck, Epiflex was utilised to bed the channel grating support rails and to fill the transition slots within the recessed concrete channel. The waterproof surface coatings were subsequently applied over the whole deck slab and continued over the Epiflex, which ensured a watertight interface between concrete and metal, whilst accommodating the designed flexing of the deck slab.









Case Studies



Manhole Cover Installation; Constantius Bridge, A69 Hexham

During this bridgedeck refurbishment, the trunk route maintenance operator, required 16 chamber covers to be installed with a waterproof, multi-purpose, flexibilised bedding and slot-filling mortar with the benefit of a long-term, maintenance-free design life.

A69 trunk route operator, Roadlink, confirmed six years after installation that chamber covers and frames had remained intact, including those subjected to the heaviest traffic loading.

"There have been no leaks between the Epiflex and the bridge deck. The manhole cover frames have stayed intact including those that are in the wheel tracks of traffic on the A69 trunk road." RP, Roadlink

Suitable for use with ironwork or composite channel-drain, gullies, frames and covers. When installed correctly in accordance with our guidelines, this innovative system can be expected to provide a service life of 20 years and eliminate early collapses and pothole development.

Manhole Cover Reinstatement; TfL Stratford Bus Station

Stratford Bus Station, the existing concrete transition material had failed after a relatively short period. On excavation, it appeared that an attempt had been made to reinforce the concrete transition, but reinforcement steel had been placed at the interface of the concrete transition and the substrate. The top of this substrate, which surrounded the brickwork chamber, was found to be of poor quality and weak, so was therefore removed.

Following careful breaking out of the transition slot, followed by thorough substrate cleaning, the frame was repositioned and set to height with Confil Bedding Mortar. Since the base of the slot was unstable, a screed was installed using fibre-reinforced polymer modified Nupatch Bedding Mortar HA104 in order to provide a solid strengthened base. Once the screed mortar had sufficiently cured, Epiflex was poured into the transition slot and filled up to the running surface.





Cementitious Bedding Mortars



Product	Description	Features	Benefits
Nupatch Bedding Mortar	Rapid Setting Mortar	 Conforms to HD27/15 3.11 Simple to use, only requires addition of clean water May be used down to 0°C Low water/cement ratio Excellent workability and finishing properties 	 Suitable for traffic after 2 hours @ 20°C Facilitates quick installation work Excellent workability and finishing properties
Nupatch Bedding Mortar HA104	Rapid Setting Mortar	 Complies with the requirements of HA104/09 6.1, HD27/15 3.11 & EN1504-3 R4 Fibre reinforced Polymer modified Shrinkage compensated One part; requiring addition of clean water 	 Suitable for traffic after 2 hours @ 20°C Develops high bond strength to concrete, steel and composite High early tensile & compressive strengths Easy to mix & install

Case Study

Manhole Cover Installation; A1 Pegswood Bypass, Morpeth

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Due to a requirement for rapid turn around, that would allow tarmac surfacing to follow on, Nupatch Bedding Mortar HA104 was selected for use on this manhole cover installation.

Due to the location, directly on the wheel line of turning vehicles, the mortar is ideal for use; the polymer content and fibre-reinforcement provide additional waterproofing robustness to the mortar.

Nupatch Bedding Mortar HA104 has been used widely for United Utilities ironwork installations.



Additional Related Products



Epikerb

Cold-applied epoxide bedding mortar for sett & paver units. Exceptional bond strengths without need for mechanical fixing.

- Economical no need to excavate a bedding channel
- Tolerant to damp surfaces
- No need for a primer
- High bond strength saves on maintenance costs
- Tolerant to road salts and freeze-thaw



Durham

Confil Grout

Polyester anchor grout for fixings, rail pandrols, airfield runway lights and street furniture. Rapid curing same day strength gain.

- Quick curing combined with rapid bond strength gain
- Easily mixed and applied
- High compressive, tensile and flexural strengths
- Excellent bond strength to steel and concrete
- Resistant to vibration and impact



Huddersfield

MMA Linemark

Easy to use, hard-wearing and long-lasting cold-applied line marking and hazard warning resin coating. Available white & hazard yellow.

- Easy application
- Quick drying, can be trafficked within 1 hour
- Excellent UV/colour stability
- Very good adhesion to most substrates
- Inherent flexibility provides excellent ductility





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