



USL
BridgeCare

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Solutions for Bridges

- High Performance Waterproofing Systems
- Expansion Joints
- Combined Kerb & Bridge Drainage



Company Profile

USL BridgeCare provides a complete service to the civil engineering and building industry for bridge deck protection which includes the supply and installation of bridge deck expansion joints and also the supply and application of spray applied bridge deck membranes.

The bridge expansion joint range of products cater for movements from 12mm through to 1600mm and include the "Britflex BEJ" which is the most popular joint used on the UK's motorway and trunk road network with over one hundred thousand linear metres currently in use.

The division also manufacture and apply their PmB and Britdex MDP waterproofing systems. All of USL's products have a proven track record and comply with the latest international approvals backed by USL's own individual client guarantee.

Through their technical department USL BridgeCare are able to offer a complete package of services to clients and will review a particular application from initial design to final installation to ensure the selection of the most appropriate and cost effective solution.



PDS - Combined Kerb
& Bridge Drainage.
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USL - Bridge
Expansion Joints.
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PmB - Polyurethane
Waterproofing System.
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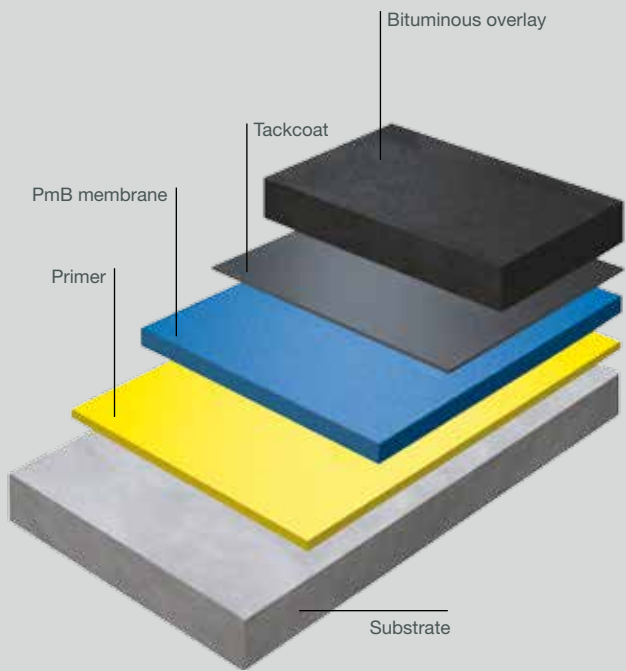


Britdex MDP - Methyl
Methacrylate
Waterproofing System.
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The Need For Effective Waterproofing Solutions

Bridges are at constant attack and under stress as water, chlorides, acid rain, de-icing salts and freeze-thaw cycles act on them. Extreme weather cycles, the impact of traffic and vibration place bridges under further stress. As steel reinforcing bars corrode and expand, concrete can crack and deteriorate. The costly disruption caused by resulting repair work impacts on both traffic and safety.

Bridge repairs can often amount to 10-30% of the updated construction cost, and large repairs may even exceed the updated construction cost and still be the preferred option when compared to the cost of traffic interruption and demolition. As moisture is the most significant factor in concrete deterioration, incorporating sufficient waterproofing at the design stage is by far the most cost-effective option.



PmB Waterproofing

Fast and Easy Installation

PmB is a two part, spray applied, durable corrosion protection and waterproofing material. The high performance system is 100% polyurethane containing no fillers or additives and is VOC free. Once applied, PmB has exceptional bond strength to all commonly used substrates, has excellent crack bridging capability and a life expectancy in excess of 30 years and holds British Board of Agrément approval.

The system has gained BBA approval for use as a damp proof and waterproofing membrane for internal and external tanking. The system holds approvals in many continents including Europe, North America, the Middle and Far East.

Advantages

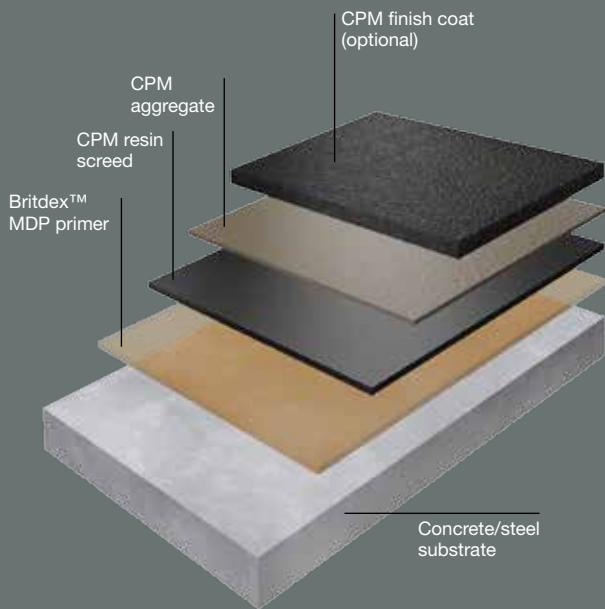
- Two component PUR spray system
- 100% solids reactive resin content
- Solvent free
- No fillers
- Rapid setting – 5-8 seconds gel time
- Tack free after approximately 1 minute
- Can be walked on after approximately 10 minutes
- Elastic after approximately 45 minutes

PmB membrane is fast and easy to install and is applied as a single coat or in multiple layers. The two component materials of the membrane system are mixed at the spray gun and applied to the substrate using compressed air.

The spray equipment allows complete mobility, spraying vertical surfaces, overhead, behind pipe bays or over corners and edges quickly and effectively. This is achieved due to the membranes ability to gel in seconds preventing curtaining and providing instant protection.

Key material performance

- Class leading adhesion to substrates
- Weather resistance
- Crack bridging
- Tear resistance
- Abrasion resistance
- Water vapour and gas permeability
- Chemical resistance
- Resistant to root and microbial attack
- Sound insulation
- Homogenous watertight seal



Britdex MDP

Britdex CPM TredSeal

Britdex MDP is a 100% effective seamless bridge deck waterproofing membrane, flexible and tough enough to outlast the design life of many structures. Comprising of rapid cure, cold spray applied MMA resin material, the system for a tough, chemically resistant seamless membrane with no vulnerable joints.

Advantages

- Seamless coating without vulnerable joints
- Quick and easy sprayable application with rapid cure
- Excellent crack bridging capability
- Durable effective protection against corrosion
- Excellent adhesion to steel
- Versatile system — accommodates all surface contours, horizontal and vertical
- Application by one or two coats

Typical applications include:

- Concrete bridge decks
- Steel bridge decks
- Bridge piers
- Culverts
- Tunnels

The adaptability of the system allows Britdex MDP to be applied by the conventional spray method, brush or roller and as a one or two coat system.

The system can be applied across a wide range of climatic conditions allowing application virtually all year round.

When applied to dry surfaces Britdex MDP is unaffected by moisture, rain or high humidity.

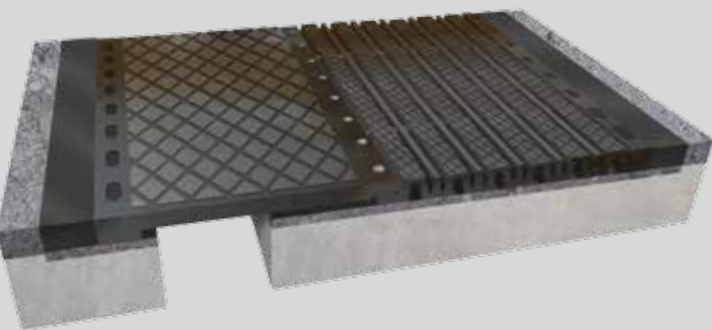
The system is durable, resisting damage during surface operations and has excellent cohesive and bond strength to the bridge deck and surfacing.

CPM TredSeal is a combined waterproof wearing system, offering 100% effective waterproofing, wearing course and skid-resistance in a single surfacing layer, many times lighter than mastic asphalt.

Ease and speed of application to concrete, asphalt, steel or aluminum substrates results in minimal possession times and a faster return to service. CPM TredSeal can be used on a wide range of structures subject to differing traffic conditions, allowing them to be lighter by design.

Advantages

- Cost Effective
- Based on BBA approved technology
- Rapid set can be trafficked within two hours
- Easy and quick application
- Aesthetically pleasing finish
- Tough, flexible and hard wearing waterproof membrane
- Versatile surfacing, suitable for application on a number of different surfaces
- This system can be applied even at low temperatures
- Waterproof



Expansion Joints

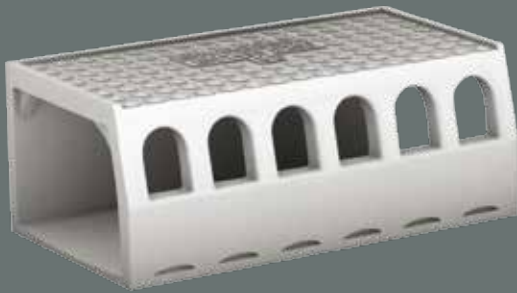
USL BridgeCare are market leaders in the manufacture, supply and installation of expansion joints which have been carefully developed to provide safe, efficient and economical methods of sealing construction gaps.

The bridge expansion joint range of products caters for movements from 20mm through to 1600mm and includes the "Britflex BEJ" which is the most popular joint used on motorway and trunk roads throughout the world.

- Rapid on site assembly
- Minimal disruption to traffic
- Perfectly suited for lane by lane installation
- Minimised future maintenance costs
- Easy to install and detail at design stage
- Adaptable to numerous applications
- Excellent global track record
- Unparalleled bond to concrete and steel decks

Movement Table

	Movement (mm)									
	0	20	40	60	80	100	200	500	1000	1600
Uniflex (Type 1)	<div><div></div></div> 20mm									
Feba Joint (Type 2)	<div><div></div></div> 40mm									
Britflex NJS (Type 3)	<div><div></div></div> 12mm									
Britflex NJ (Type 4)	<div><div></div></div> 40mm									
Transflex (Type 5)	<div><div></div></div> 330 mm									
Transflex HM (Type 5)	<div><div></div></div> 1500mm									
Britflex BEJ (Type 6)	<div><div></div></div> 150mm									
MEJS (Type 6)	<div><div></div></div> 1600mm									
Comb/Finger Joint (Type 7)	<div><div></div></div> 1600mm									
LJ (Longitudinal Joint)	<div><div></div></div> 220mm									
UCP (Footbridge Joint)	<div><div></div></div> 70mm									



Combined Kerb & Bridge Drainage

Combined kerb drainage units are now widely used and specified on bridge decks whether they are new build or part of a refurbishment scheme. Drainage is an essential requirement on all bridges.

Deck mounted systems provide continuous surface & sub surface drainage and easily assessable maintenance.

Existing systems are traditionally metallic, which are heavy, raising Health and Safety issues for the installers. Metallic units place additional weight on the structure. In addition, metallic units are prone to oxidization which can spoil the appearance of a structure, particularly as the systems are a highly visible element of the completed project. This results in on-going expensive maintenance.

- Lightweight non metallic
- Precision manufacturing
- Colour coding options
- Half battered and 45 degree splayed
- New anti slip top surface
- Wide range of widths and depths available
- Fully compliant to BS EN1433
- Surface and subsurface drainage capability

Features and Benefits

- Units comply with manual handling legislation
- Anti slip surface
- Aesthetically pleasing
- Hydraulics - Produces smooth high quality channel invert
- Chemical resistance
- Impact resistance
- High quality
- Compliant to EN 1433 specification

EnviroKerb

EnviroBridge

EnviroCover

Dri-Deck

EnviroDeck

EnviroChamber



Contracting Capability - Site, Fleet & Machinery

USL manufacture high quality products, and has the capability to supply and install all products, offering the comfort of client single source responsibility, whether it be undertaking simple or complex expansion & waterproofing installations requiring multiple crews.

Fleet & Machinery (Contracts)	
Custom Built Installation Rigs	32
Specialist Application Equipment	20
Commercial Vehicles	68



Manufacturing Capability Research & Development Approvals

USL has a wealth of experience in manufacturing specialist construction products. Enjoying an excellent reputation within the industry for quality products, excellent value and exemplary customer service. The company's manufacturing facility processes bitumen, epoxy, polyurethane and acrylic resins together with aggregate and powder blending. The resin facility operates to zone 1 for highly flammable materials.

USL is a quality assured manufacturer which is reflected in the quality of products the company supplies. Fully accredited to internationally recognised Quality Management System, we are able to provide full traceability of product and constantly monitor our processes to ensure that we offer all customers the highest levels of service. Free Certificates of Analysis and Certificates of Conformity are provided where requested and USL works closely with all customers to ensure that they receive exactly what they require.

USL takes innovation seriously and believes it is the only way a specialist construction company can stay ahead of the game. That is why USL invest resources into their laboratories and material testing facilities, concentrating on the development of ground breaking products to improve effectiveness and efficiency on construction sites across the world.

USL's Research and Development is stimulated by the relationships with their customers acting upon specific client requirements, providing timely solutions which provide the backbone of the company's ever expanding product portfolio.



Aberdeen Western Peripheral Route



M74 Completion



Mersey Gateway Bridge



A1 Blaydon Haugh Viaduct



Project Snapshots

Project: Aberdeen Western Peripheral Route - Balmedie to Tippierty

Product(s): Britdex MDP, Uniflex, Surface Impregnation Britflex BEJ, Britflex NJ, FEBA , Transflex & MEJS & Envirodeck

Client: Transport Scotland

Main Contractor: AWPR Construction JV (Balfour Beatty, Morrison Construction and Carillion)

Summary: The Aberdeen Western Peripheral Route /Balmedie to Tippierty (AWPR/B-T) lies at the intersection of several major roads around the city of Aberdeen in Scotland. The project included the construction of 128km of new roads and access tracks, 2 river crossings at the River Dee and the River Don, 3 wildlife bridges and over 100 other structures.

Project: M74 Completion

Product(s): Britdex MDP, Britflex BEJ & Envirodeck

Client: Glasgow City Council

Main Contractor: Interlink JV (Sir Robert McAlpine, Morgan Sindall, Balfour Beatty and Morrison Construction)

Summary: The M74 completes the 8km link between the M74 at the Fullarton Road junction near Carmyle to the M8 near Glasgow City Centre. The project included the construction of 14 bridges, the largest of these was the 30,000m² Port Eglinton Viaduct, which has 12 spans and stretches across several local roads and 12 sets of railway tracks, including the West Coast Main Line.

Project: Mersey Gateway Bridge

Product(s): Transflex HM, Envirodeck

Client: Halton Borough Council

Main Contractor: Mersey Link CCJV (FCC Construcción, Kier Infrastructure and Samsung C&T Corporation)

Summary: The structure is cable-stayed with three pylons and 2.3km long with a river span of 1km. The main bridge deck is made from reinforced concrete and the spans are supported by steel cable stays attached to pylons rising up to between 80 and 125m above the river bed. The sheer scale of the project required the two expansion joints to accommodate 1200mm and 1500mm of movement at each abutment respectively.

Project: A1 Blaydon Haugh Viaduct

Product: Modular Expansion Joint System (MEJS)

Client: Highways England

Main Contractor: A-one+

Summary: The A1 Blaydon Haugh Viaduct is located over the River Tyne, Newcastle. The crossing consists of 17 spans constructed of plate girders with a composite concrete deck. The viaduct is approximately 540m long. Works included removal of existing Modular Expansion Joint System during night time road closures and the installation of LG 6 MEJS expansion joint system.

Project: Second Severn River Crossing, UK

Product: PmB

Client: Second River Crossing PLC

Summary: The bridge connects England to Wales. The overall length of the crossing structure is 5,128m. The bridge decks comprised of precast concrete segments.

PmB waterproofing system was selected after a six month study including site trials and in-situ testing.

The waterproofing was applied to the entire structure which included Shoots bridge, Welsh approach and English approach viaducts.

The total area for waterproofing was 176,000m2.



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