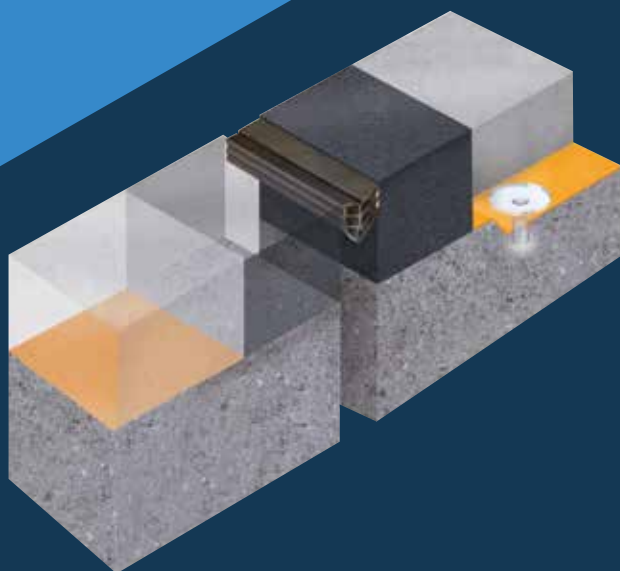




EXPANSION JOINTS

BRITFLEX NJ

NOSING





Introduction

Market leaders in Expansion Joint Technology.

We are a world class, multi-disciplined engineering solution provider, with core competencies in structural protection and movement control.

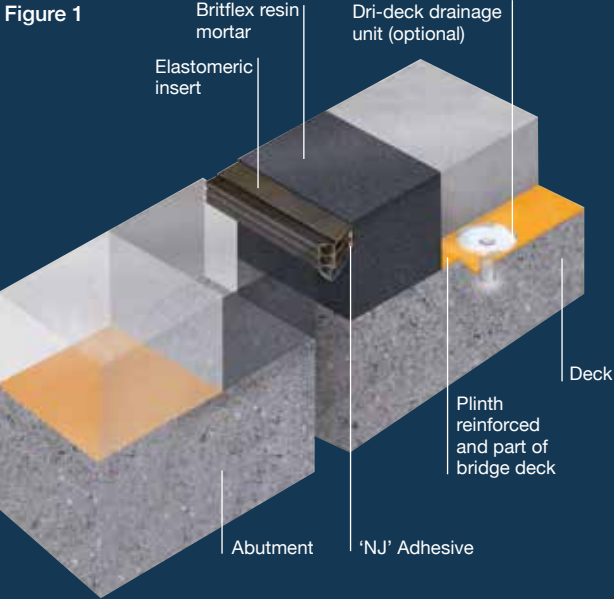
We offer an unrivalled range of specialist services including spray applied bridge deck membranes, bridge deck expansion joints, structural bearings, bridge deck drainage as well as bespoke structural fabrications.

Through early project engagement with stakeholders, we are able to provide high quality engineering solutions by way of consultancy support or the delivery of a complete project management service.

From design, manufacture and installation, to inspection, site maintenance and replacement work, our single point of responsibility offering, leaves USL Ekspan uniquely placed to solve complex challenges on a truly global scale.



Figure 1



PRODUCT IN BRIEF

The NJ expansion joint is a surface mounted nosing joint with an elastomeric compound known as Britdex Resin Mortar.

The NJ system is approved in accordance with CD357 standard.

Unlike the BEJ system, the NJ system can only be used in the situation where the open gap at carriageway level does not exceed 65mm (N.B for U.K. only).

SYSTEMS BENEFITS

- Rapid installation
- Minimised installation periods and future maintenance costs
- No mechanical fixings
- Resists deformation from traffic load
- Installed to the 'as build' geometry of the structure
- Accepts horizontal and vertical movement
- Excellent track record

Table 1 - Design detail



Notes
The 'W' and 'D' dimensions are the minimum for new works contracts. For refurbishment contracts, nosing width and depth can be varied, however the 'W' and 'D' dimensions should always be based upon a minimum aspect ratio of 1.25:1, width to depth.

APPLICATIONS

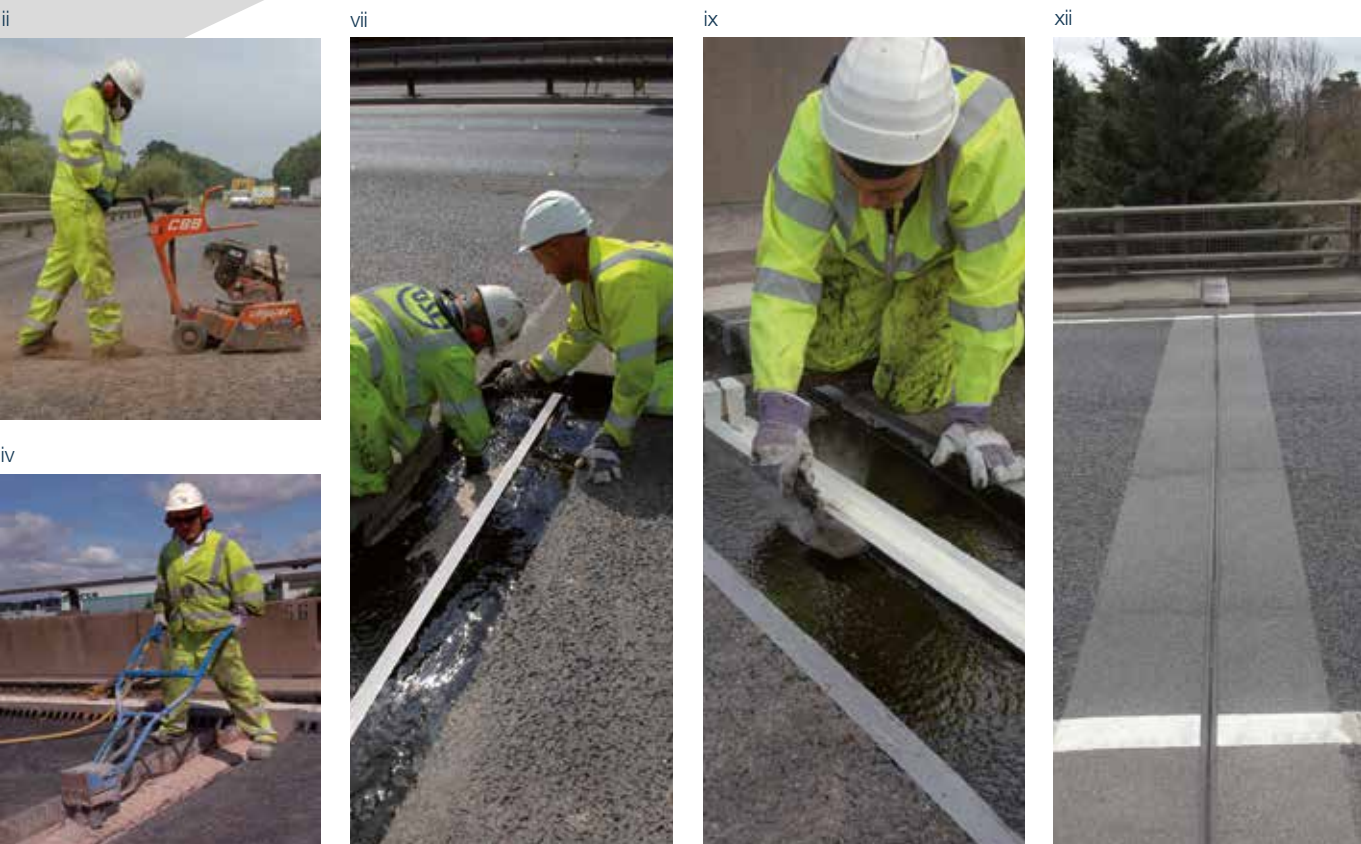
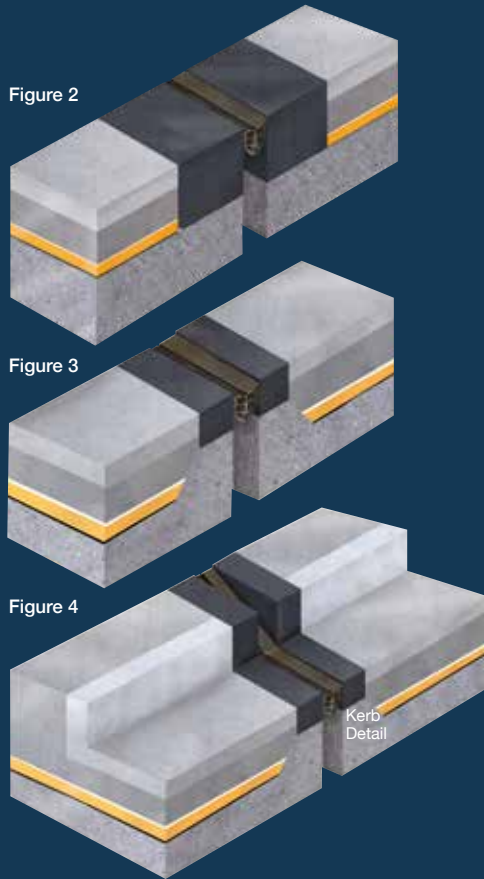
- Highway bridges
- Footbridges

The NJ joint is ideally suited for maintenance schemes and has been developed to provide a whole life economic solution for applications where previously asphaltic plug joints have always been considered and can be installed to the full depth of the surfacing as per Figure 2.

SPECIFICATIONS

- (i) Polyureide Resin – The patented Britflex Polyureide Resin is a two part liquid system comprising one clear component (base) and one black (hardener), packed in colour coded drums.
- (ii) Elastomeric Insert – The extruded EPDM insert is capable of accommodating a range of movement. The insert is supplied in 30-60 metre lengths.
- (iii) NJ Adhesive – A solvent free fast setting epoxy gap filling adhesive with excellent bond strength and non-slump characteristics making it ideally suited for application in vertical situations. The material has been specifically developed to bond the EPDM inserts to the Britflex resin mortar.
- (iv) Aggregate – The aggregate is a graded mix supplied in 20kg sealed plastic bags.

TYPICAL DESIGNS

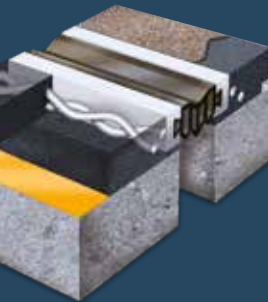


INSTALLATION

- (a) General steps in the installation of the 'NJ' Expansion Joint.
 - (i) The two resin components are warmed in oil jacketed gas fired heaters and maintained at 65°-85°C.
 - (ii) The joint width is marked out on the asphalt surfacing and saw cut to provide a trench in the carriageway. The trench width will depend on the selected nosing width, type of joint and the required gap setting.
 - (iii) The surfacing or the existing failed joint is broken out.
 - (iv) The concrete deck and any previously formed recess in the verge/central reserve is lightly scabbled and/or wire brushed and substandard asphalt/concrete removed.
 - (v) All loose arisings and any standing water are removed with compressed air.
 - (vi) All exposed surfaces should be dried before priming, by using compressed air and/or hot air depending upon the weather conditions.
 - (vii) The polystyrene shutter is cut to size and placed in the expansion gap between the nosing formers. The complete trench is then primed with the resin mix.
 - (viii) The nosing formers are suspended on the spacer plates of the selected size movement gap and set for line and level.
 - (ix) The resin mortar is mixed and then placed into the prepared trench in the carriageway and trowelled flush with the surfacing.
 - (x) The resin mortar will cure after two to three hours at approximately 70°C. It is then allowed to cool before the spacer plates and nosing formers are removed.
 - (xi) Bonding adhesive is applied to the nosings either side of the expansion gap.
 - (xii) The elastomeric insert is installed using compression tongs and can now accept traffic.
- (b) Weather and Temperature Criteria
 - The polyureide resin may be installed in ambient air temperatures of up to 50°C. It is not affected by freezing, but care must be taken to ensure the substrate is frost free and sufficiently dry before the priming stage.
- (c) Time lag after completion and before opening to traffic
 - Shortly after the resin mortar has cured the elastomeric element can be inserted and the joint opened to traffic. During phased working the joint can be opened to traffic shortly after the cure with or without the elastomeric element in place to suit the sequence of installation and minimise traffic disruption.
- (d) Other Notes
 - When the 'NJ' system is bonded to steel, this should be prepared by gritblasting or other suitable means just prior to priming. The 'NJ' insert should be protected from white-lining materials e.g. sand.



USL EKSPAN PRODUCT RANGE



EXPANSION JOINTS - CD 357

- Uniflex** - Buried

BP1 - Buried

FEBA - Flexible Plug

Britflex NJ - Nosing

EC & EW - Joint Seal

Transflex & Transflex HM - Mat

T-MAT - Mat
- Britflex BEJ** - Modular

Britflex MEJS - Modular

LJ - Longitudinal Joint

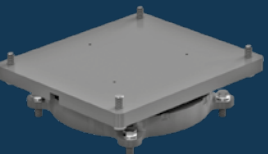
ES - Joint Seal

Aqueduct/Immersed Joint

Open Type Joint - Rail Joint

Britflex UCP - Footbridge Joint

- Finger Joint**
- Roller Shutter Joint**



STRUCTURAL BEARINGS

- EKE** - Elastomeric (EN1337-3)

KE - Pot (EN1337-5)

DE - Line Rocker (EN1337-6)

GE - Spherical (EN1337-7)

FE - Restraint & Guide (EN1337-8)
- D** - Line Rocker (BS5400-9)

F - Restraint & Guide (BS5400-9)

G - Spherical (BS5400-9)

J - Roller (BS5400-9)

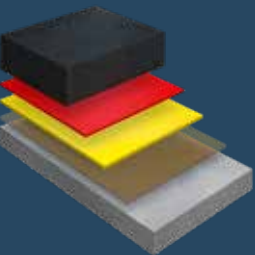
K - Pot (BS5400-9)
- Link Bearing** (BS5400-9)

EA - Sliding Bearing

EKR - Rubber Pad & Strip

EQF - Sliding Bearing

Bespoke Bearings



STRUCTURAL WATERPROOFING - CD 358

- Pitchmastic PmB**

Polyurethane (Pu) Waterproofing System

Britdex MDP

Methyl Methacrylate (MMA) Waterproofing System
- Britdex CPM Tredseal**

Combined Waterproofing and Anti Skid Surfacing (MMA)

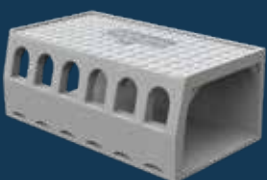
Uradeck BC

Combined Waterproofing and Anti Skid Surfacing (Pu)



SUB-SURFACE BRIDGE DRAINAGE

- Ekspan 325 Channel**
- Ekspan 302 System**
- ES Seal System**
- DriDeck**



SURFACE BRIDGE DRAINAGE

- Envirodeck**



ADDITIONAL INFORMATION

Technical & Advisory Service

Further technical information may be obtained on request and consultation is encouraged to ensure choice of materials selected and detailing are optimised to suit inservice performance requirements and economic solutions. A recommended inspection and maintenance statement is available and will also be issued at the time of installation.

Health & Safety

USL Ekspan operate a strict policy on health and safety and details are available on request.

Note:

The colours used in the illustrations may not be indicative of the finished product. USL Ekspan reserve the right to update and improve the 'NJ' Expansion Joint and its specification without notice and Engineers and Contracton should satisfy themselves that they have full and up to date information.

With a comprehensive portfolio of products and a highly developed global network, USL EKSPAN is focussed on providing specialist construction solutions on a truly global basis.





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