October 2018

IKO permatrack®

Bituminous Repair and Protection Systems






Mastic Asphalt Road Repair & Protection Systems

IKO

IKO is a truly Global enterprise, with over 130 years of history, knowledge and innovation, distributing products to 96 countries around the globe with manufacturing plants in Canada, United States, United Kingdom, Belgium, Holland, France and Slovakia.

The IKO Group

IKO continues to remain committed to its family values of entrepreneurial spirit, craftsmanship and innovation in roofing, waterproofing and insulation that were the foundation of the business envisioned by IKO founder, Israel Koschitzky.

Our Values

There are 6 main IKO Values that are core to the business (Sharing Knowledge, Integrity, Long-Term, Performance, Humility and Agility), helping define IKO's history and provide the blueprint for what IKO can achieve both today and in the future.

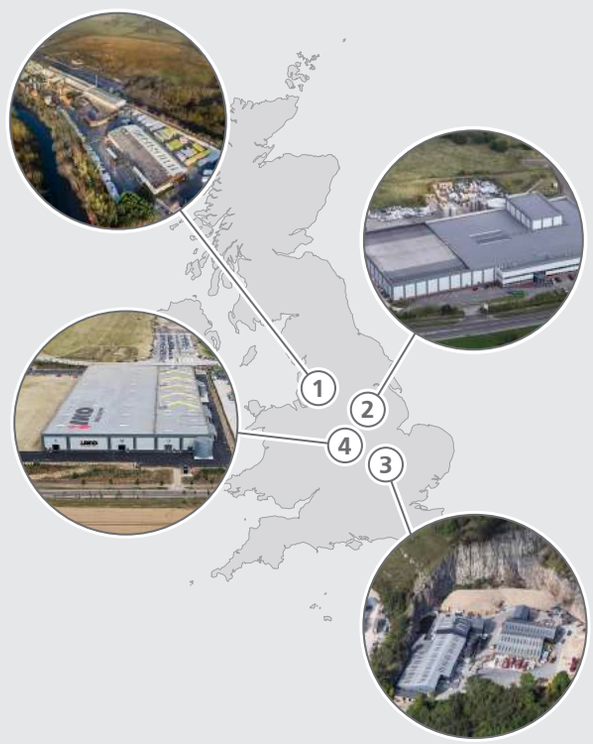
www.ikogroup.co.uk/about-iko/iko-values

IKO in the UK

The IKO UK Group, comprising IKO PLC and IKO Polymeric, was established in 2000 and has grown both organically and through the successful acquisition and integration of well known, reputable brands including Ruberoid, Permanite, Marley Waterproofing, Hyload and Pure Asphalt.

IKO PLC continues to grow within the traditional roofing and waterproofing industry as well as a number of different markets including PIR insulation and mastic asphalt solutions for highways and civil engineering projects.

For over 130 years IKO PLC has been providing the design, manufacture and installation of roofing, waterproofing and insulation systems, yet still has commitment to continue investing in products solutions, manufacturing facilities and it's employees, all dedicated to achieving excellence at every level.



1	IKO PLC, Head Office, Wigan, Lancashire - Bituminous Membrane & Liquid
2	IKO Polymerics, Clay Cross, Chesterfield - Single Ply, High Performance DPC
3	Grangemill Quarry, Matlock, Derbyshire - Mastic Asphalt & Hot Melt
4	Alconbury Weald, Cambridgeshire - PIR Insulation

About this Brochure

Traffic levels on our highways are higher than ever. So the demands on road surfaces – and the need to repair them quickly – have never been greater. No-one can afford for roads to be shut longer than necessary so it pays to rely on the industry's leading maintenance and reinstatement systems.

IKO PLC is a company at the very forefront of bituminous technology and UK manufacturing and a company committed to delivering total excellence, from product development and design through to technical specification and consultation during the installation process.

Working closely with local authorities, the Highways Agency and many of the UK's leading specialist installation contractors, IKO has not only built an enviable reputation, but also a portfolio of prestigious projects the length and breadth of the country.

The IKO Service

Consultation & Technical Support

Our Customer Services and Technical Department are on hand to help you get the product and technical support you need, when you need them, saving time on any projects.

CPD & Training

As part of the commitment to Continuing Professional Development (CPD), IKO PLC provide a comprehensive technical seminar – Advanced Bituminous Systems for Highways and Civils Engineering - highlighting a number of typical problems experienced by road surfaces, bridge joints and highways ironworks as well as featuring overview of solutions offered by IKO's advanced bituminous repair and protection systems for highways, bridges and infrastructure projects.

Visit IKO's Grangemill manufacturing site to gain extensive product knowledge through product demonstration, training and seminars on the benefits of specifying mastic asphalt for infrastructure projects.

Approved Installers

IKO's advanced bituminous systems are installed through a network of approved installers to ensure a long-lasting and quality installation for added peace of mind.

Guarantee

When installed in accordance with IKO's specification we can offer a 5 year material guarantee.

British made for British Trade

IKO PLC have been manufacturing British made products for over 130 years and continue to invest in UK manufacturing; developing and producing new products to service market demand directly from the various manufacturing plants here in the UK. Manufacturing in the UK comes with a number of excellent benefits, for example, quality control, speed of response and answer to market requirements and decreased CO2 emissions from transportation.

Why Mastic Asphalt?

Mastic Asphalt a versatile construction material

Mastic asphalt is an ideal material for a whole range of construction applications, both new build and refurbishment, where a seamless and durable surface is required. It offers total waterproofing integrity for roofing and tanking and acts as a tough working surface in flooring and paving.

Mastic asphalt is one of the world's most traditional construction materials and has continued to develop with the times, even in today's hi-tech building industry.

The product comprises suitably graded limestone aggregates bound together with an asphaltic cement (primarily refined bitumens) to produce a dense, voidless material. It cannot be compacted, and is spread by means of a hand float, rather than rolled.

Today's modern mastic asphalt contains highly advanced polymer formulations, pioneered by manufacturers like IKO in the 1980s.

The Carbon Zero Effect

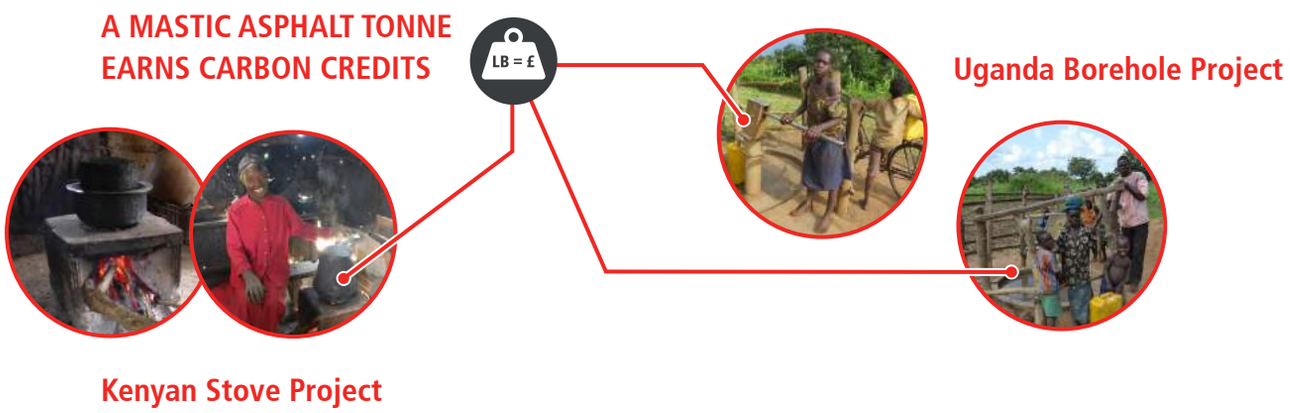
We're reducing the impact on our environment

Mastic Asphalt, the ultimate base for protection and waterproofing, became the first industry in the world to achieve the CarbonZero standard.

Working with CO2balance by offsetting the CO_2 the produced during the manufacturing process by purchasing Carbon Credits.

For every tonne of Mastic Asphalt we make it helps to fund environmental and humanitarian causes.

In particular, the money raised helps less fortunate people in countries such as Africa, where CO2balance are providing special brick stoves and borehole rehabilitation for cleaner cooking and water facilities.



ikogroup.co.uk/about-iko/sustainability/carbonzero/

IKO pacopatch®

Polymer Modified Mastic Asphalt

Ironworks Reinstatement System

IKO Pacopatch is a long-lasting mastic asphalt system designed to reinstate failing surfaces surrounding manholes, drainage gullies and other public utilities ironworks. IKO Pacopatch has a long-track record of being specified by local authorities and utilities across the country since 2001.

System Benefits

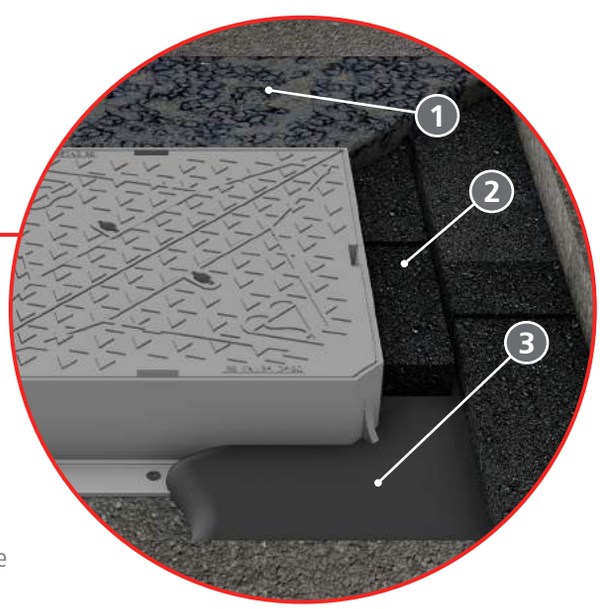
- No costly second visit - IKO Pacopatch gives a long-term road reinstatement installation every time!
- No void system - Impermeable and monolithic mastic asphalt reinstatement solution
- No compaction required - No roller or plate compactor required and no more damage to ironwork seating
- No extended road closures - Quick and easy to lay for a faster installation. Installation can be completed in under 30 minutes
- Smoother transition from ironwork to flexible pavement for improved structural continuity
- System materials guarantee upto 5 years
- CE Certificate 0836–CPR–14/F082
- BS EN 13108-6

IKO Pacopatch: Ironwork Reinstatement System

IKO Pacopatch is a polymer modified mastic asphalt highway reinstatement system. It is a simple two part system comprising of IKO Pacopatch Grout and IKO Pacopatch Brick.

IKO Pacopatch Brick is manufactured with a high percentage of recycled material and forms the bulk of the system providing dimensional stability and aid the cooling of the IKO Pacopatch Grout. IKO Pacopatch Bricks can be broken as necessary depending on the shape and size of the reinstatement.

IKO Pacopatch Grout is polymer modified mastic asphalt utilised as the in-fill material. The molten material flows around the IKO Pacopatch Bricks to create an impervious and voidless reinstatement system.



	Product	Description	Format / Nominal Weight
1	IKO Pacopatch Grout (Final Layer)	A polymer modified mastic asphalt utilised as the in-fill material, it flows around the IKO Pacopatch Bricks to create an impervious and voidless reinstatement system.	Block / 20kg
2	IKO Pacopatch Brick	Manufactured with a high percentage of recycled material and forms the bulk of the system providing dimensional stability and aid the cooling of the Pacopatch Grout.	Brick / 6kg
3	IKO Pacopatch Grout (First Layer)	A polymer modified mastic asphalt utilised as base layer	Block / 20kg

IKO permatrack®

Bituminous Repair and Protection Systems

Bridge Expansion Joint System

Heavy duty, highly flexible - Bridge expansion joints can become distorted through heavy, slow moving vehicles or overloading, leading to irreversible damage – especially with low movement asphaltic plug type systems.

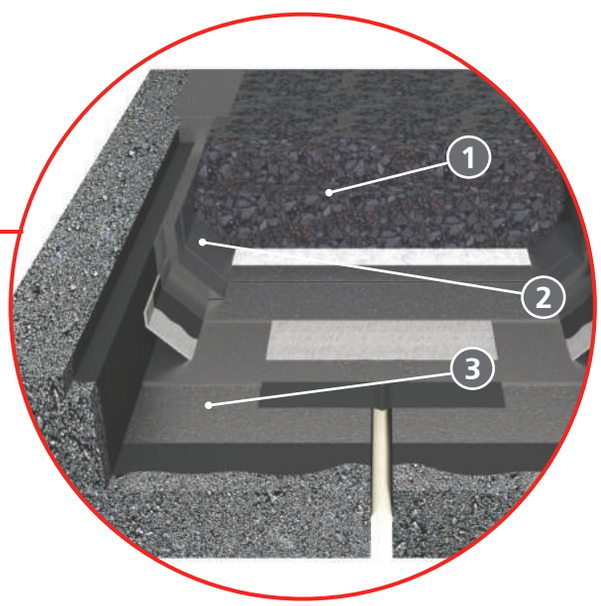
System Benefits

- Versatile and waterproof system
- Rapid installation reducing delays and inconvenience
- Unlimited joint width and depth
- Long term durability
- Withstands heavy traffic
- Cost effective
- Range of finishes to match different surfaces and skid resistance levels
- High bond strength to substrate
- Accommodates differential movement
- Highways Agency Registered (No. 028 –22/08/2002)

IKO Permatrack: Bridge Expansion Joint System

The IKO Permatrack H Heavy Duty Bridge Expansion Joint (BJ) is a structurally enhanced movement joint ideal for repairing and replacing such damage, able to accommodate the movement inherent in bridges. And as it can be installed to any depth or width, any localised surface deterioration can be taken into account, avoiding the need to use a more expensive system of jointing.

In addition, it's a fully-registered Highways Agency product.



	Product	Description	Format / Nominal Weight
1	IKO Permatrack H Bridge Deck Expansion Joints (BJ)	A high-modulus material that uses a binder of SBS modified bitumen and Trinidad Lake Asphalt giving low temperature flexibility and high temperature stabilities required for heavily trafficked roads	Block / 20kg * Hot-charge (molten state)
2	IKO Permatrack PSB Strip	Rubberised strips designed to increase flexibility and improve adhesion to existing surfacing.	Strips
3	IKO Permatrack PSB	A rubberised waterproofing layer designed to increase flexibility and improve adhesion to existing surfacing.	Block / 12kg

* Delivered to site in purpose-built transporters which are heated and thermostatically controlled and continually agitate the product

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Bituminous Repair and Protection Systems

Inlaid Crack Repair System

Rapid repairs - A rapidly installed repair providing a long-term solution to reflective cracking in tarmac or concrete, designed to withstand even heavy traffic.

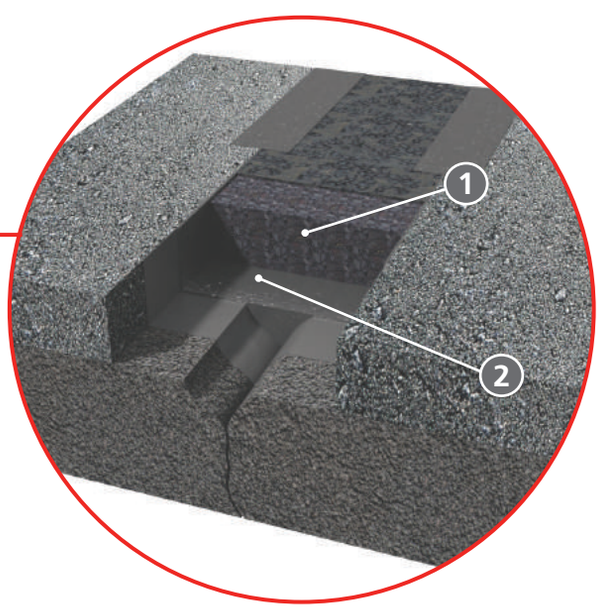
System Benefits

- Simple, versatile system
- Unlimited repair width and depth
- Rapid installation reducing delays and inconvenience
- Long term durability
- Withstands heavy traffic, including aircraft, trucks and tracked vehicles
- Cost effective
- Range of finishes to match different road surfaces
- High bond strength to substrate
- Accommodates differential/substrate movement
- BBA HAPAS approved (certificate 02/H072)

IKO Permatrack: Inlaid Crack Repair System

The structurally enhanced material supports the adjacent wear surfaces and can accommodate movement within the substrate – and its impervious nature protects substrates from deterioration caused by moisture and de-icing salts.

A wide variety of finish options is available, all meeting the Highways Agency's highest skid-resistant specifications.



	Product	Description	Format / Nominal Weight
1	IKO Permatrack H Inlaid Crack Repair (ICR)	A high-modulus material that uses a binder of SBS modified bitumen and Trinidad Lake Asphalt giving low temperature flexibility and high temperature stabilities required for heavily trafficked roads	Block / 20kg * Hot-charge (molten state)
2	IKO Permatrack PSB	A rubberised waterproofing layer designed to increase flexibility and improve adhesion to existing surfacing.	Block / 12kg

*Delivered to site in purpose-built transporters which are heated and thermostatically controlled and continually agitate the product

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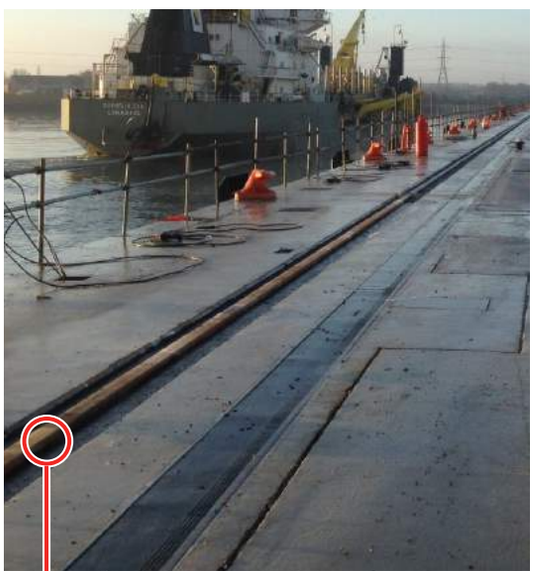
Bituminous Repair and Protection Systems

Transitional Joint System

Where track meets traffic - Where road surfaces meet metal tram and train rails, severe fatiguing and traffic damage can occur. This is caused not only by road vehicles, but also from the increased vibration and excessive tensile movements within the rails at crossovers and bends.



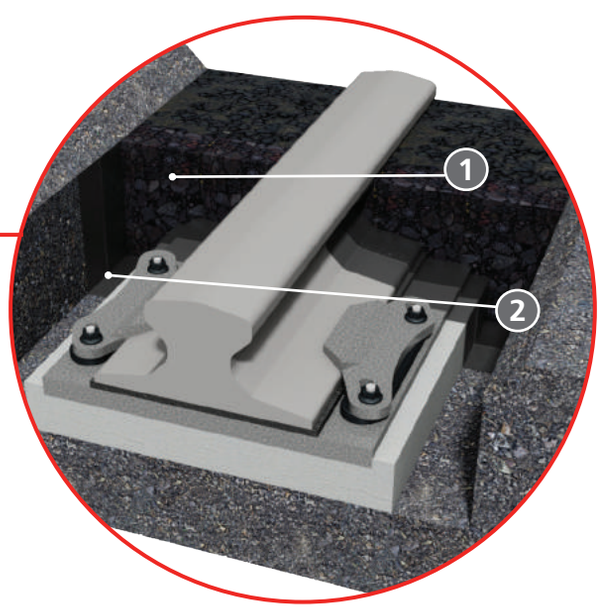
System Benefits

- Versatile and waterproof system
- Rapid installation reducing delays and inconvenience
- Unlimited joint width and depth
- Long term durability
- Withstands heavy traffic
- Cost effective
- Range of finishes to match different surfaces and skid resistance
- High bond strength to substrate
- Accommodates differential movement

IKO Permatrack: Transitional Joint System

The IKO Permatrack H Transitional Joint System has been specifically developed to resist these stresses, offering a flexible and long-lasting solution. In particularly heavy traffic areas, an additional 20mm buffer zone can even be added on either side of the IKO Permatrack sections.

The area is finished with IKO Permatrack H and topped by an anti-skid dressing equal to the highest Highways Agency skid resistance specification, while the actual finish can be aesthetically matched to the adjacent road surface.



	Product	Description	Format / Nominal Weight
1	IKO Permatrack H Rail Infill (RI)	A high-modulus material that uses a binder of SBS modified bitumen and Trinidad Lake Asphalt giving low temperature flexibility and high temperature stabilities required for heavily trafficked roads	Block / 20kg * Hot-charge (molten state)
2	IKO Permatrack PSB	A rubberised waterproofing layer designed to increase flexibility and improve adhesion to existing surfacing.	Block / 12kg

*Delivered to site in purpose-built transporters which are heated and thermostatically controlled and continually agitate the product

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Bituminous Repair and Protection Systems

Road Surface Patch Repairs

The simple surface repair solution - The combination of increased traffic levels and severe weather events has led to a marked increase in potholes in recent years - and their appearance puts pressure on highway engineers to repair them quickly with minimum disruption.

System Benefits

- Minimum depth of repair 40mm
- No maximum depth
- Repairs thin wearing layers with no need for large patch removal, including SMA
- Rut resistance @ 50°C 3mm/hr
- Excellent skid resistance properties
- Long service life, even in high shear situations and standing traffic areas
- Proven in even the most demanding situations
- BBA HAPAS approved (certificate 02/H072)

IKO Permatrack: Road Surface Patch Repair System

The IKO Permatrack Patch Repair System has been specifically designed to address the pothole problem, along with larger delaminated areas such as bus stops, HGV pull-ins or areas with severe sub-base problems.

The material arrives on site ready mixed, and after removing the defective area by cold milling it is levelled into place. Traffic can pass over the area within just two hours, meaning not only less inconvenience for road users but lower highway maintenance costs.

Reassurance from start to finish

To support IKO's state of the art manufacturing facility, we also offer a comprehensive technical support service to assist at all stages of the product specification and installation. We can assist with specific projects and our expertise means we can offer solutions to a wide range of applications.

IKO permatrack®

Bituminous Repair and Protection Systems

Flood Defence System

For protection of sea walls, embankments and revetments - As innovators in the field of mastic asphalt technology, the Permatrack name has become synonymous with the highest quality range of flood defence systems, specifically in the area of Grouting Mortars.

System Benefits

- Ideal for sea walls, embankments, channels and underground works
- Unlike other systems, can be placed both above and below the water level
- Simple to install
- Outstanding strength and robustness
- Able to withstand high impact of waves
- Flexible enough to follow long-term settlement of sea defence structures
- Can be recycled at end of working life
- Cost-effective, long-term protection
- Durability up to 40 years

IKO Permatrack: Flood Defence System

IKO PLC work extensively and have forged close relationships with the Environmental Agency, regional water companies, local authorities and major civil engineering contractors. We also operate our own self offload vehicles as well as a fleet of hot charge transporters designed to deliver hot molten product direct to project locations, therefore reducing contractor time on site.

Grouting Mortars are hot-type mixes of sand, filler and bitumen. Stone and gravel can be added if required. These mortars are ideal for grouting stone revetments above and below water level and also for slab construction.

Quality manufacturing, quality products.

IKO Permatrack Bituminous Grouting Mortars are manufactured at IKO's state of the art factory in Matlock, Derbyshire. The system has also demonstrated successful results on sea walls, river and canal embankments, channels and underground works.

Bridge Deck Surfacing - Case Studies

Tower Bridge, London - Bridge Deck Surfacing System	400 Tonnes

The bridge was closed in September 2016 for three months while necessary repairs were made to the lifting sections, walkways and approaches. Contractor Infallible Systems of South East London chose the IKO Permatrack Solution to renovate the walkways and tower bases. Existing mastic asphalt was removed and replaced with an IKO Permatrack Bridge Surfacing System over mastic asphalt waterproofing.

John Chapman of Infallible Systems explains, 'We've been IKO customers since we were founded more than 30 years ago. The product is excellent, the after-service is fantastic and the Technical Team's help with the initial spec is invaluable.'

The high-profile job was completed a week ahead of schedule, allowing the bridge to re-open before Christmas.

Impact Calculator: 400 Tonnes Mastic Asphalt = 50.11 Tonnes of CO2 Offset

M4 Chiswick Flyover, London - Bridge Expansion Joint System

Chiswick Flyover is situated at the end of the M4, joining the motorway to the A4, a main arterial route carrying thousands of vehicles into Central London each day the A4 is prone to heavy traffic congestion causing queues of traffic to stand on top of the bridge. This places immense pressure on the expansion joints in the structure. The 'T' shape of the structure meant that two traditional asphaltic plug joints had been installed each at widths of 500mm with a gap between them of 750mm. Owing to their inherently soft material properties the asphaltic plug joints had prematurely failed displaying severe rutting because of the prevailing traffic conditions. Rainwater collecting on the road surface was therefore allowed to leak through the failed joints, eroding the flyover supports.

As part of a total refurbishment of the flyover IKO Permatrack Heavy Duty Expansion Joints were chosen. The high modulus joints incorporate IKO Permatrack PSB, a highly polymerised elastic bituminous membrane in preformed strips to provide the movement properties of the joint which is bonded to IKO Permatrack H a high modulus matrix consisting of SBS modified bitumen and Trinidad Lake Asphalt. IKO Permatrack H is compatible with virtually all common surfacing products (bituminous, resins etc), and no special primers or bonding agents are required in order to achieve full bond to the IKO Permatrack top surface.

www **ikogroup.co.uk/case-studies**

Bridge Deck Expansion Joints - Case Studies

Dock Road, Tilbury - Bridge Expansion Joint System	233 lm

The major route in and out of the Port of Tilbury sustains daily, continual heavy HGV traffic which can deteriorate road joints. A cost effective solution was required, with minimum disruption to all road users.

The IKO Permatrack H Bridge Joints were chosen for their proven track record on numerous other joints installed on the UK's motorway network.

It was vitally important that this solution could be installed on joints wider that 500mm (up to 875mm) and due to strict timing schedules, could be installed quickly and efficiently. Utilising 'ready to lay' material from a hot charge vehicle meant IKO could match the strict schedule and assist in reducing disruption to traffic.

Selby Swing Bridge, Selby - Bridge Deck Surfacing System	1,200m^2 Mastic Asphalt

The Ouse Swing Bridge was built as part of the Selby Bypass and was eventually opened in 2005. Ten years on, re-surfacing of the bridge was required. Along with re-surfacing of the roads either side of the bridge, on close inspection, there were signs of wear and tear on the bridge surface areas too.

IKO's Permatrack Bridge Surfacing system was chosen - a waterproof mastic asphalt wearing course for Bridge Decks containing both polymer and epure (Trinidad Lake Asphalt) modifications to the bitumen binder, which offers improved material flexibility and maintains good rut resistance.

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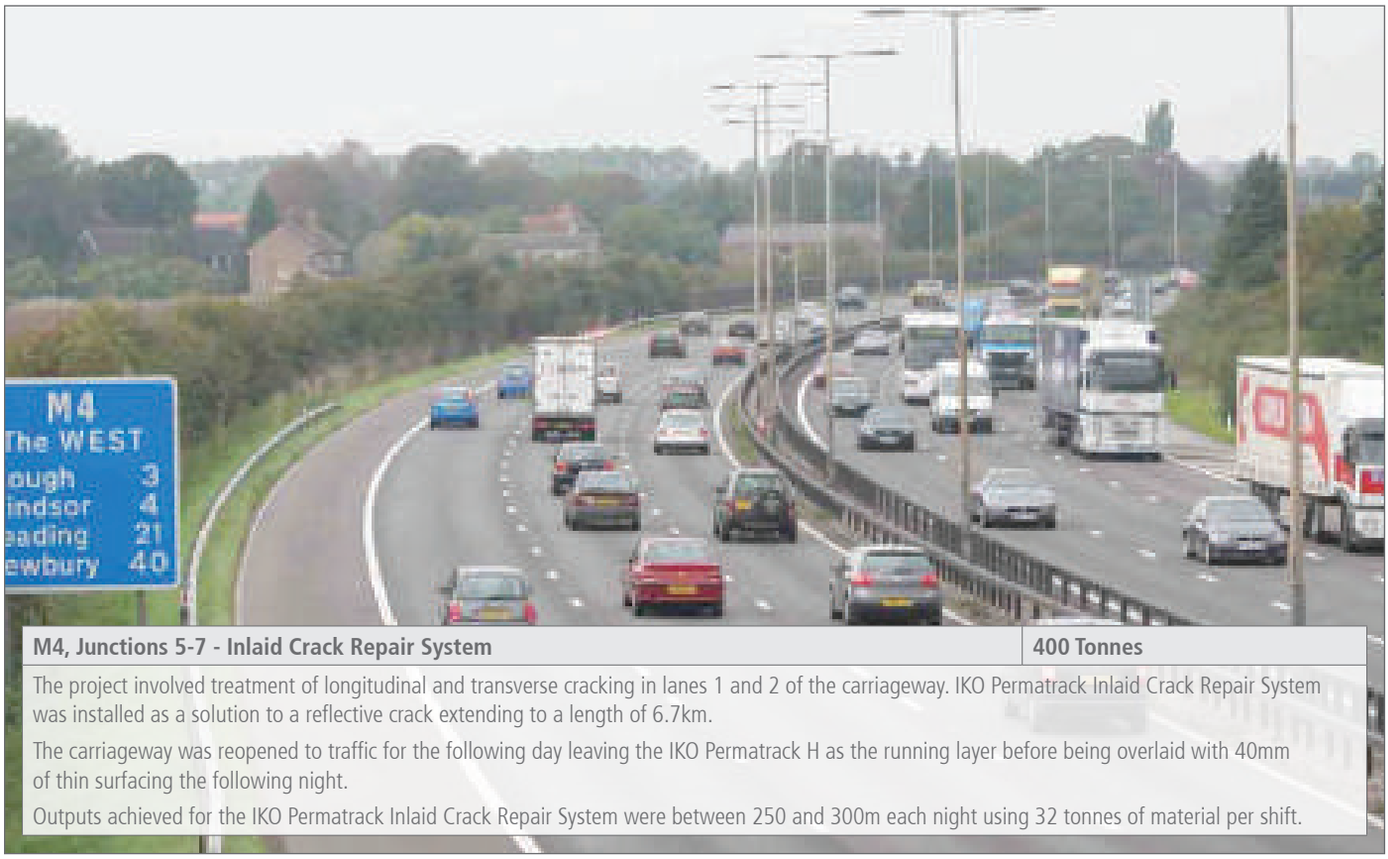
Highway Crack Repairs - Case Studies



M4, Junctions 5-7 - Inlaid Crack Repair System	400 Tonnes

The project involved treatment of longitudinal and transverse cracking in lanes 1 and 2 of the carriageway. IKO Permatrack Inlaid Crack Repair System was installed as a solution to a reflective crack extending to a length of 6.7km.

The carriageway was reopened to traffic for the following day leaving the IKO Permatrack H as the running layer before being overlaid with 40mm of thin surfacing the following night.

Outputs achieved for the IKO Permatrack Inlaid Crack Repair System were between 250 and 300m each night using 32 tonnes of material per shift.

Wigman Road, Nottingham - Inlaid Crack Repair System	14,000 lm

Wigman Road on the outskirts of the City of Nottingham. City engineers have been faced with almost non-stop maintenance ever since, particularly in the areas of high stress at roadway junctions, traffic islands and areas of relative cracking where the asphalt surfacing passes over the underlying concrete joints. The City was faced with miles of deteriorating roadway almost to the point of it becoming unusable. This had to be brought back to a surfacing of suitable standard to perform as a carriageway capable of withstanding the heavy traffic associated with a major thoroughfare.

Trials were conducted by a number of companies to repair areas of reflective cracking and the sample areas were monitored for overall performance. IKO Permatrack was selected for over 14,000 linear metres of joint repairs. The system, incorporating IKO Permatrack PSB and IKO Permatrack H, provided a repair capable of accommodating high levels of movement and at the same time provide a hard wearing and long lasting surfacing.

ikogroup.co.uk/case-studies

Ironwork Reinstatement - Case Studies

Market Harborough - Manhole Reinstatement

A failed manhole near a residential area in Market Harborough needed to be replaced, Northampton County Council required a long-lasting, road ironwork reinstatement solution. The ongoing loud clanking noise produced by the cars driving over the manhole was deeply frustrating for the local residents. Also because the manhole was sunken it represented a risk to pedestrians and bikes, as well as causing car damages.

Manly Co Ltd a professional ironwork and civil engineering contractor selected IKO Pacopatch due to it's long-lasting mastic asphalt system, designed to reinstate failing surfaces surrounding manholes, drainage gullies and other public utilities ironworks.

IKO Pacopatch has a long-track record of being specified by local authorities and utilities across the country since 2001.

IKO PLC

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