



# CAR PARK DECK WATERPROOFING & COATING SOLUTIONS

# A GUIDE TO CAR PARK DECK WATERPROOFING & COATING SOLUTIONS



# COMMON CAR PARK CHALLENGES

Without the right solutions underfoot, car parks are likely to fall foul of a long list of challenges which could lead to cracked, unsightly and unclean deck surfaces – or worse compromised concrete slabs and an unsafe structure.

To make sure that a multi-storey car park is ready for the demands that it will face, it's important to take into account the following considerations.

Thanks to the tried-and-tested solutions in our specialist range, car park operators can rest assured that their facility is protected from all of the above challenges for the long term.

## Moisture & Water Ingress

To fully protect a deck coating and its underlying structure, it's important to guard against liquids seeping into the concrete while simultaneously stopping moisture from inside the concrete rising up into the floor.

If too many liquids seep into the concrete then the critical metal reinforcement will start to rust and corrode, putting the site's structural integrity at risk. This could lead to anything from concrete discolouration to leaking between decks and dripping corrosive, salt-contaminated water onto cars or possibly even the concrete falling apart completely.

## Concrete Slab Movement

Car parks are constructed with large clear spans with a minimum number of supporting columns in order to achieve the maximum number of vehicle parking spaces. This type of construction, when subjected to cyclical traffic flow, inevitably leads to the structure flexing and moving.

The floor coating will also experience these issues and needs to be able to flex with the movement of the cars and the underlying concrete slab without splitting apart. Too rigid and the floor will crack when subjected to the above forces, too thin or weak and the grinding punishment of the cars will wear away at the floor.

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**Multi-storey car parks (MSCPs) are often overlooked as uncomplicated, simple structures – but in fact there's a multitude of complex building considerations for both new build and refurbishment projects at play.**

This is especially true of the deck, which has to cope with the constant passage of heavy vehicles, structural movement, exposure to the elements and attack from automotive chemicals, all while protecting the vulnerable concrete from being damaged by water and other contaminants.

Because every deck is different, we've combined multiple waterproofing and wearing surface systems as well as movement joints together into this one specification brochure to deliver the perfect solution for any car park, anywhere.



# OUR PROMISE



By working together across the UK and Ireland, Flowcrete and Tremco are able to combine an unrivalled collection of coatings, waterproofing solutions, membranes and movement joints.

This means that regardless of the challenges being faced onsite, we have the versatility and breadth of products required to provide the ideal answer.

For decades, both brands have supplied Europe's largest, most complex MSCPs with high performance deck coating and waterproofing solutions.

This experience makes us uniquely well placed to advise on how to create large-scale, multi-storey car parks that will provide users with a safe, clean and attractive facility and that will provide operators with a long-lasting, reliable and low maintenance structure.

## Support Offered

Our commitment to customer support is illustrated by the many services that come part and parcel when working with us, which include:

-  Consultation
-  Site Survey
-  Specification
-  Technical Support
-  Installation
-  Warranty & Aftercare
-  RIBA approved CPD

# OUR PACKAGE

The Deckshield range is designed to provide superior deck coating properties at every point of the building's lifecycle. Much of this stems from the innovative Polyurethane modified methyl methacrylate (PUMA) based formulation of the systems which provides a number of advantages over traditional resin or cementitious systems.



## Fast Track

The PUMA technology that goes into Deckshield coatings helps to make the installation phase much quicker and easier. The catalyst speeds up the rate of cure, which means that each layer of coating can cure in less than 60 minutes and can be trafficked after only three hours. When considering that epoxy or polyurethane based systems can take days or even weeks to fully cure this is a huge time-saving benefit.

In addition, Deckshield coatings can be applied in very cold temperatures – down to -20°C. This is great for large, unheated projects in the middle of winter, which now don't have to down tools while waiting for a warmer day, but can get on with applying the deck coatings regardless of what the weather is doing.



## Safeguard

The floor plays a very important role in the safety and general experience of a car park user. For a start, the potential for water and slippery automotive oils to be lying around poses a dangerous slip risk. To avoid painful slips and trips, Deckshield systems provide a positively textured, anti-slip surface that enhances traction underfoot.



## Aesthetics

How likely are people to enjoy their surroundings if it is dark and dreary?

Maintaining a clean and colourful area is central to making sure that people feel safe and welcomed while using the car park. With a wide choice of colour options and extensive design potential, Deckshield coatings can be used to get creative across the floor area while providing all the functional properties necessary for large, busy and complex MSCPs.



## Protect

MSCP owners and operators can rest assured that Deckshield's durability, hard wearing and long lasting characteristics protect the deck from damage caused by fuel and oil spills, impact, traffic wear, point loading, weather and structural movement.

**RAMPS, TURNING CIRCLES,  
HAMMERHEADS & SERVICE DECKS**

DECKSHIELD RANGE (HEAVY DUTY)



**EXTERNAL DECKS**

DECKSHIELD RAPIDE ED1, ED2, EDP



**EXTERNAL DECKS**

(ABOVE OCCUPIED PREMISES)

DECKSHIELD RAPIDE EDF



**INTERNAL DECKS**

DECKSHIELD ID, DECKSHIELD RAPIDE ID



**BASEMENT DECKS**

DECKSHIELD ID



**MOVEMENT JOINTS**

MIGUA & WILLSEAL SYSTEMS



**INTERNAL DECKS**

(ABOVE OCCUPIED PREMISES)

DECKSHIELD RAPIDE ED1, ED2, EDF



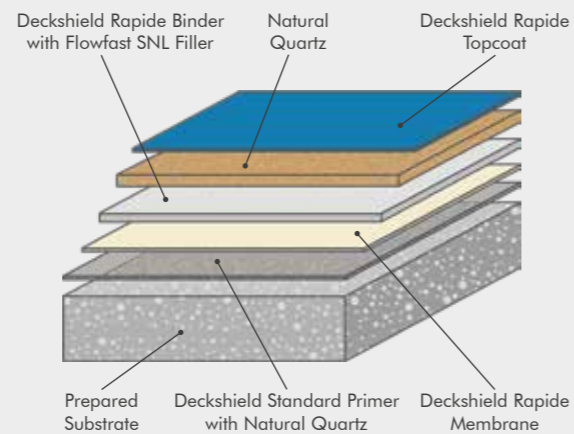
# SOLUTIONS FOR EXTERNAL DECKS

Deckshield systems suitable for a car park's exposed deck include four variations.

These coatings have all been designed to overcome top deck challenges and provide designers and developers with a variety of options in order to tailor the floor to their site's specific budgetary, operational and aesthetic needs.

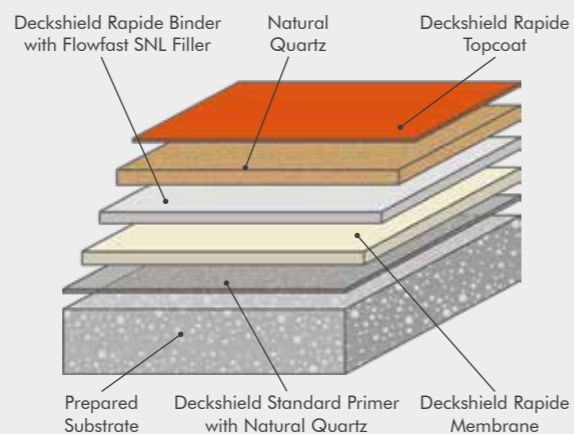
## Deckshield Rapide ED1

- The standard option that provides all the functionalities required for a multi-storey car park's floor
- Provides dynamic crack bridging up to 0.3 mm (1 mm when banded)



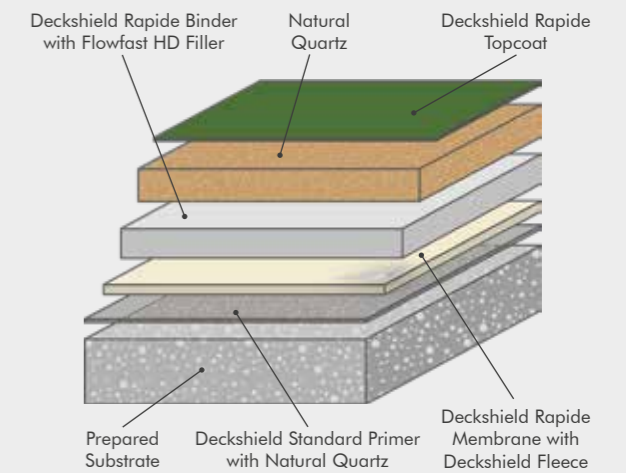
## Deckshield Rapide ED2

- The enhanced performance of ED2 means that banding is not normally required, significantly reducing labour and time to install
- Provides dynamic crack bridging up to 0.6 mm



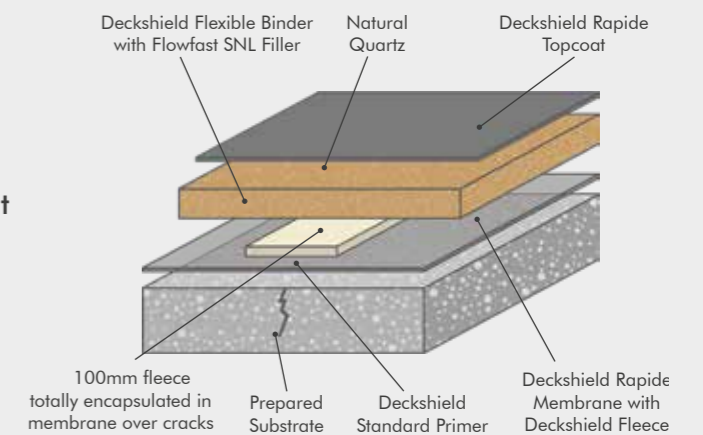
## Deckshield Rapide EDF

- A fleece reinforced deck system providing the highest level of protection for use above occupied spaces
- Provides dynamic crack bridging up to 2.5 mm



## Deckshield Rapide EDP

- A partially fleece reinforced deck system optimally engineered for the refurbishment of existing decks
- Provides dynamic crack bridging up to 2.5 mm



# SOLUTIONS FOR INTERMEDIATE DECKS

While the intermediate decks of an MSCP might be less exposed to the elements, there are still a long list of factors and considerations that need to be taken into account.

Intermediate decks are likely to be subject to high levels of traffic, as users seek to minimise their walking time from vehicle to exit. Ramps and turning areas will also come under repetitive load.

Deckshield ID and Deckshield Rapide ID have been designed to withstand these conditions for an extended period of time, providing the facility's owners and users with a high-end environment they can rely on.

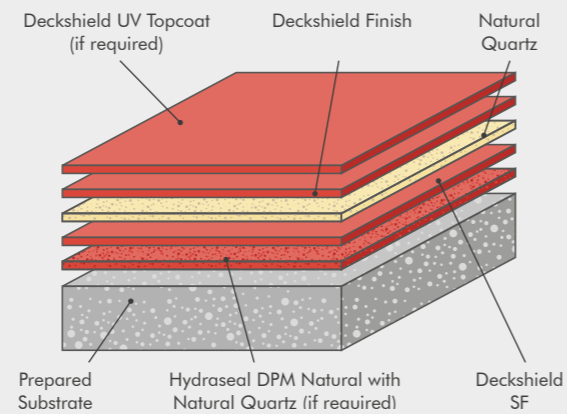
## Deckshield ID



A flexible polyurethane car park deck coating system



Provides up to 2-3mm thickness



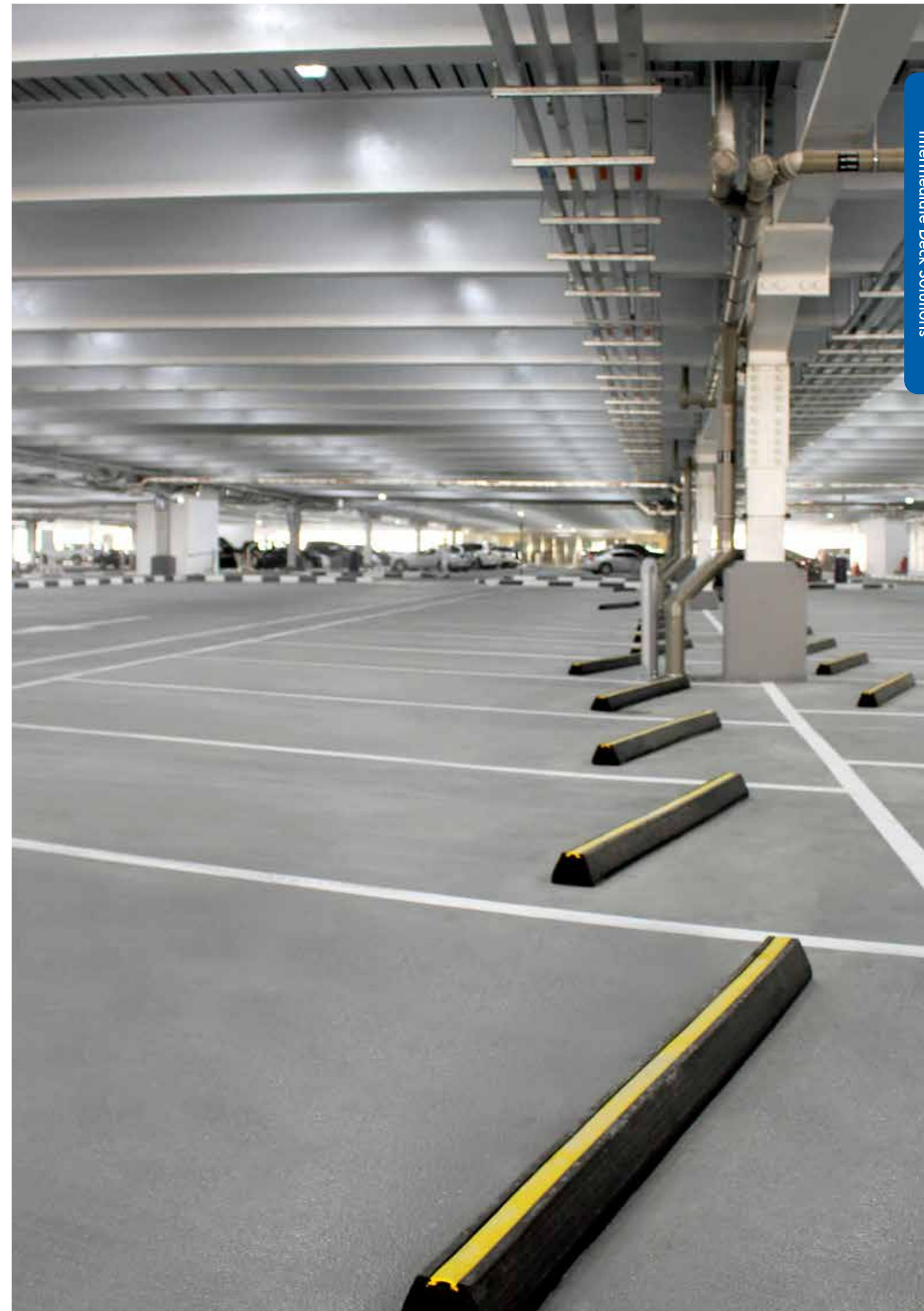
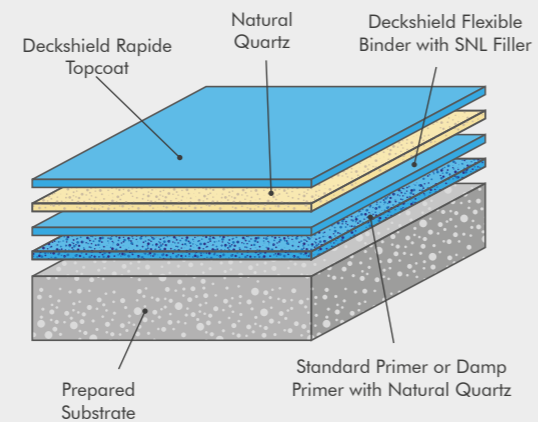
## Deckshield Rapide ID



A fast cure PUMA (Polyurethane modified methyl methacrylate) car park deck coating system that provides waterproof surface



Provides up to 2-3mm thickness

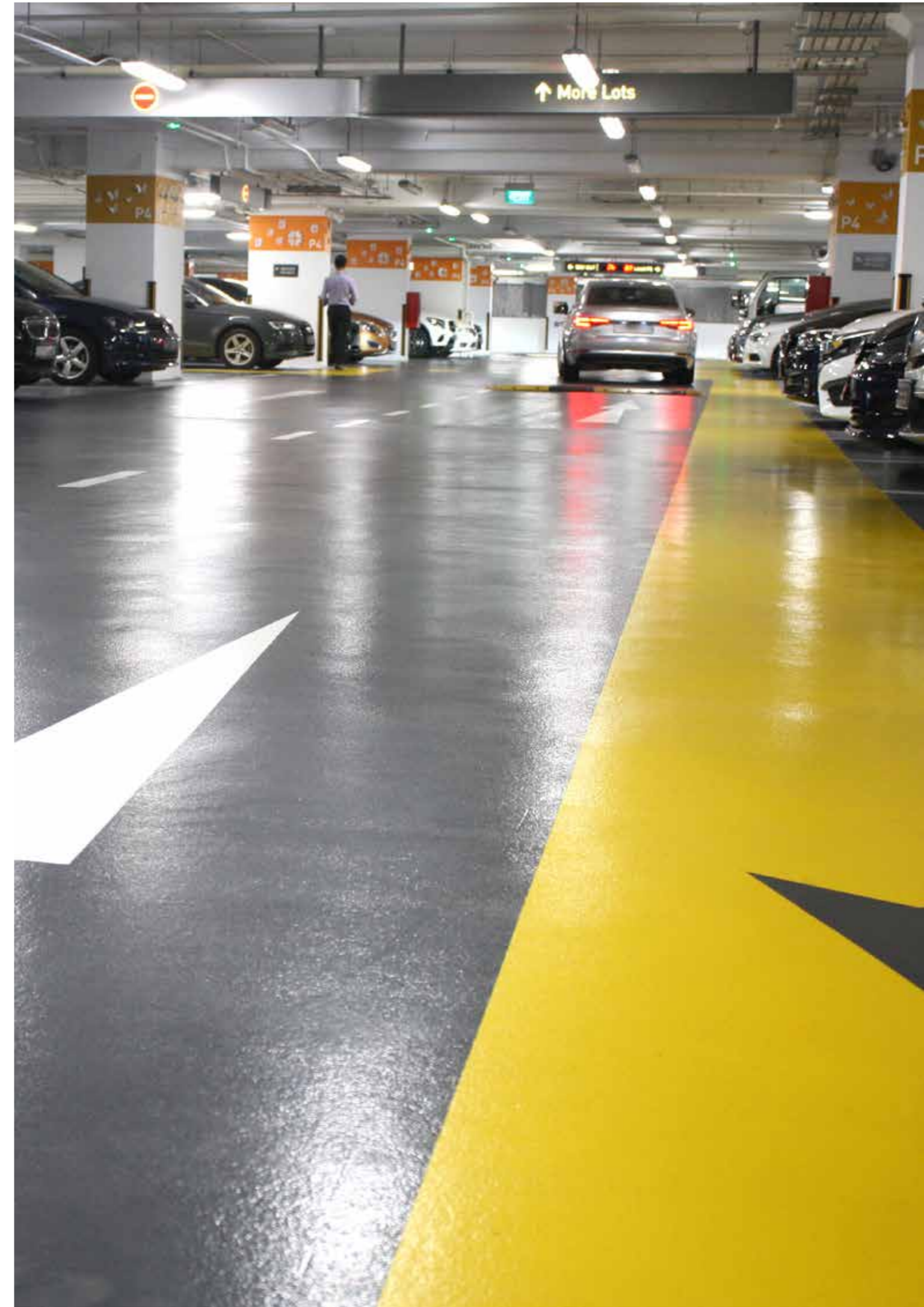


# SOLUTIONS FOR BASEMENT DECKS



Basement decks are likely to experience moisture in concrete which can be exacerbated by the absence of an effective DPM.

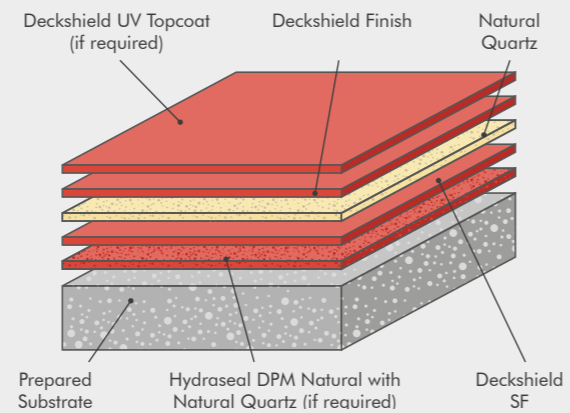
Application of surface coatings in a confined environment such as a basement brings means careful consideration must be given to dealing with odours and fumes. Fast curing PUMA technology minimises risk in such conditions.

Deskshield is designed to cope with construction moisture but is not designed to resist hydrostatic water pressure. In such circumstances external tanking or pressure relief, by e.g. directed drainage, must be provided to the structure.





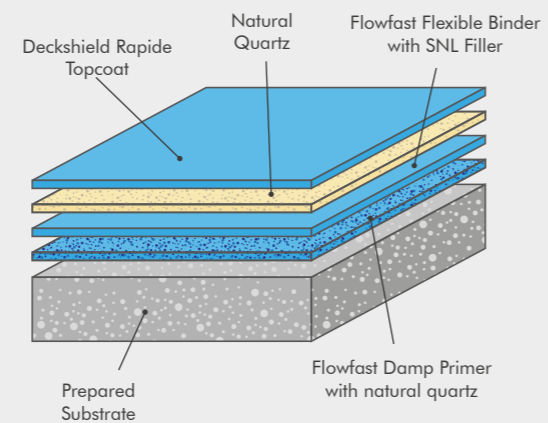
## Deckshield ID

-  A flexible polyurethane car park deck coating system
-  Provides up to 2-3mm thickness



## Deckshield Rapide ID

-  A fast cure PUMA (Polyurethane modified methyl methacrylate) car park deck coating system that provides waterproof surface
-  Provides up to 2-3mm thickness







# SOLUTIONS FOR REFURBISHMENT

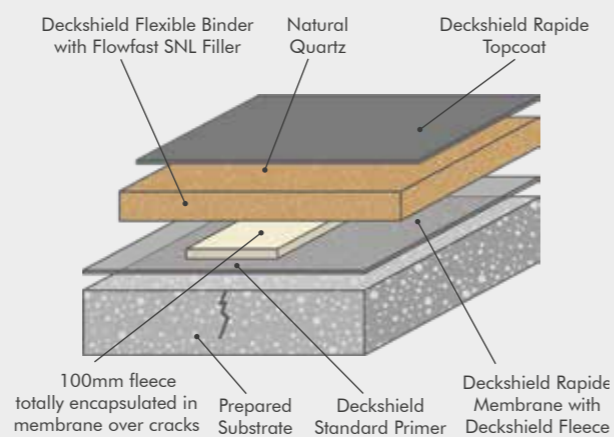
Deckshield includes systems perfect for renovating and rejuvenating tired decks, ramps and turning circles.

Choosing PUMA based coatings is a significant time and labour saver for a refurbishment project, as it can be applied on top of existing asphalt. PUMA technology creates a chemical fuse with the underlying layer, reducing the chance of de-bonding and avoiding the cost and hassle of taking up the old coating.

## Deckshield Rapide EDP

 A partially fleece reinforced deck system, great for when applying over occupied premises

 Provides dynamic crack bridging up to 0.6 mm





## SYSTEMS FOR RAMPS, TURNING CIRCLES, HAMMERHEADS & SERVICE DECKS



### These areas of an MSCP bring specific challenges to the design process.

In particular, ramps, turning circles, hammerheads and service decks will face unique demands due to the fact that cars will be exerting significant pressure into the floor as they turn tightly and quickly.

The stress of this action can result in these areas experiencing loud tyre squealing and increased levels of wear. To avoid this, all the systems in the Deckshield range are available in a heavy duty and ramp option that includes larger aggregate in order to combat excessive wear and reduce tyre squeal.

## SOLUTIONS FOR OTHER CAR PARK AREAS



It's not just the parking bays and main routes that need a high performance deck coating, as there is a long list of other rooms, zones and spaces that will need to be accounted for. This includes:

### Stairwells

Slip resistance is vitally important for the stairs, as otherwise the site's users are at high risk from dangerous trips and falls. Consider anti-slip finishes and brightly coloured nosings that make pedestrians aware of the stair's edge.

### Podia

Car parks within a building's podium will be subjected to specific forces and demands. In particular, if the podium design means that the car park is above an occupied premises (such as the lobby, offices or shops) then it's prudent to over-engineer the solution with a reinforced crack-bridging deck membrane such as Deckshield Rapide EDF.

The fleece reinforcement within this system provides the highest level of cohesion and tear strength possible, ensuring that in the event of excessive movement, the system is able to spread the stress across a very wide area, stopping liquids penetrating to the deck or occupied premises below.

### Balconies

Balconies will face the same weather related challenges as top decks and therefore need to be able to withstand prolonged exposure to the wind, rain and sun without failing.

Robust coatings are required that will be able to bond to the substrate and protect against water ingress while simultaneously maintaining an attractive, easy to maintain surface.

### Walkways

Car parks can be dangerous environments if not properly designed, and incorporating bright and obvious navigational signage is vital for keeping the facility's users safe.

Walkways should be clearly outlined and easy to spot. This can be achieved by using bold colours and large, easy to see symbols. However, this signage needs to be able to retain its vibrancy despite prolonged use, wear and tear, as if the colours fade or the signage flakes away then the car park can suddenly become a much more hazardous place for pedestrians.

# CERTIFICATION & TESTING FOR EXPOSED DECK SYSTEMS



An MSCP's exposed deck is in many ways the most important, a fact that's illustrated by the tough standards that coatings in these environments have to meet.

The recommended substrate temperature for application is 10-25°C, but Deckshield can be applied at significantly lower temperatures. Contact our Technical Services Team for further details and guidance.

## BS EN 1062-7

BS EN 1062-7 is the British and European Standard regarding the 'Determination of Crack Bridging Properties'. This European Standard specifies two methods for determining the crack bridging properties of coating materials. Method A measures the continuous opening of the crack, whereas Method B evaluates the cyclic opening of the crack.

Method A results run from Class A1-A5 and Method B results run from B1 – B4.2. Deckshield Rapide EDF records the highest dynamic crack bridging performance possible within the test parameter.

## BS EN 1504-2

Deckshield complies with BS EN 1504-2, which is a British and European Standard regarding 'Surface Protection Systems for Concrete Surfaces', devised as part of a series covering the basics of concrete repair and structural strengthening.

Part 2 of the standard specifies the requirements for the identification, performance (including durability aspects) and safety of products and systems to be used for surface protection of concrete, to increase the durability of concrete and reinforced concrete structures, as well as for new concrete and for maintenance and repair work.

## Standard Colours\*

		
Traffic Grey B RAL 7043	Dusty Grey RAL 7037	Grass Green RAL 6010
		
Traffic Blue RAL 5017	Traffic Purple RAL 4006	Tomato Red RAL 3013
		
Traffic Orange RAL 2009		

\*The applied colours may differ from the examples shown and are not indicative of the full colour range. For a full colour chart and samples, contact your local Flowcrete office.



# WATERPROOF MOVEMENT JOINTS

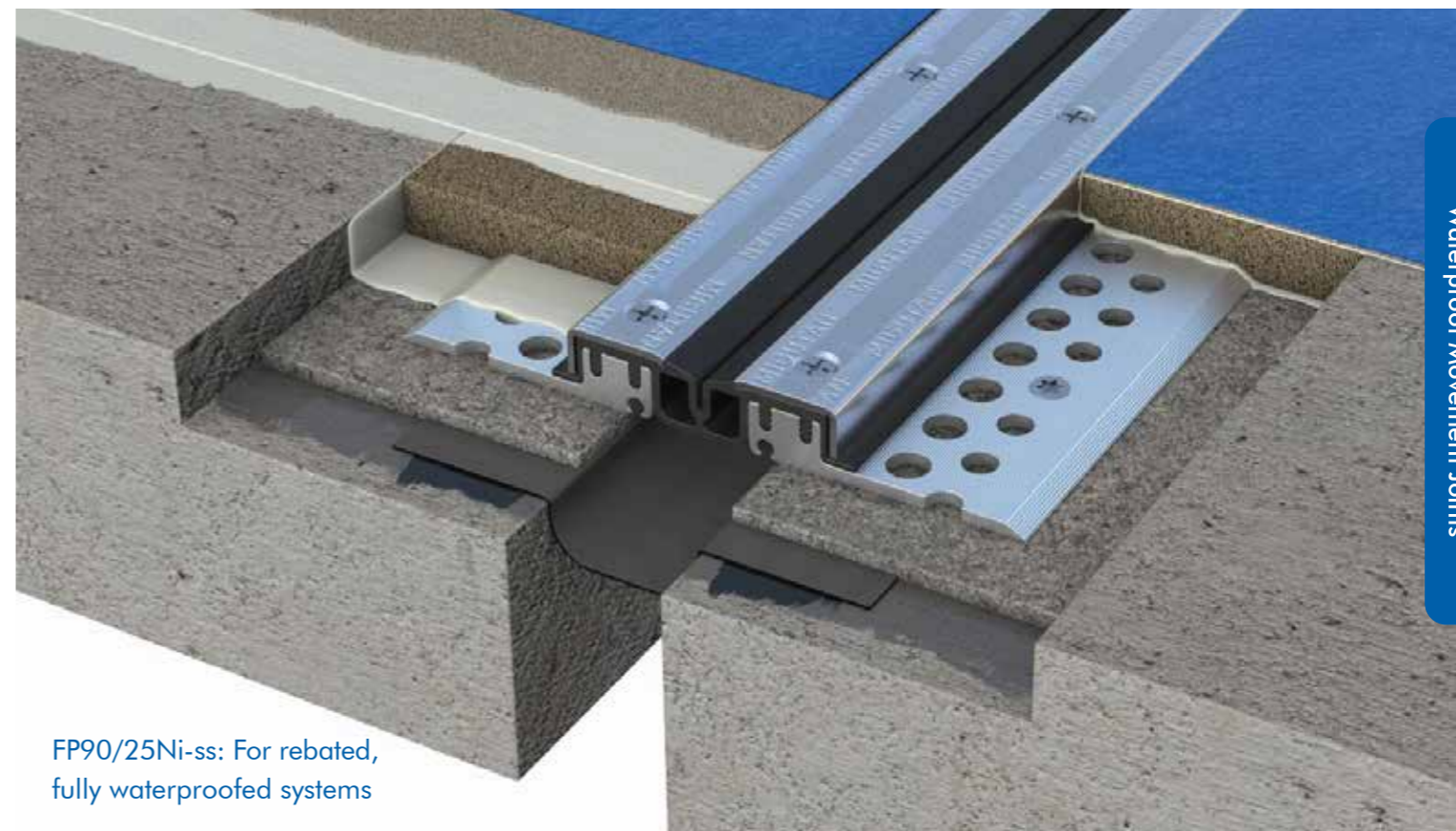
illbruck **MIGUA**

Movement joints are required to bridge the designed/constructed movement gaps within the structure to bring the decks together in a way that safely absorbs any building movement by temperature-induced expansion or contraction, vibration, traffic flows, dynamic loading, ground settlement or even seismic activity.

If these joints are not up to the task then it can lead to severe cracking and damage in both the floor finish as well as the concrete supporting structure. In many situations it's also important that these joints are watertight in order to protect the building from water penetration.

Every Deckshield system on any deck (external, internal or above an occupied premises) can be used alongside our movement joints in order to build the necessary flexibility and protection from the structural movement into the floor and wall itself.

The versatility of our range means that specifiers and developers can choose movement joints as specific and individual as the building itself. So regardless of the forces, demands and complexities of a new-build or refurbished MSCP, you can make sure that the structures' movement joints will work with the surrounding materials to keep the building safe and secure.



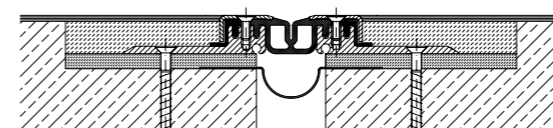
FP90/25Ni-ss: For rebated, fully waterproofed systems

## THE MIGUTAN SYSTEM

A fully waterproofed solution which benefits from a full system warranty when used with Deckshield car park deck waterproofing systems. It is suitable for use on both concrete and asphalt decks and is usually used on roof decks or lower decks above inhabited spaces.

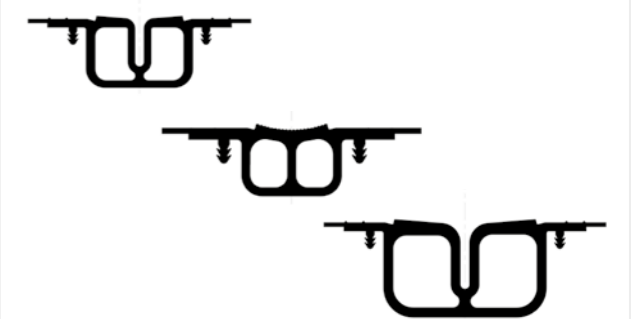
### Typical Installation

Fully waterproofed system for exposed decks or above areas above inhabited space, suitable for use with Deckshield Rapide ED systems.



### Central Inserts

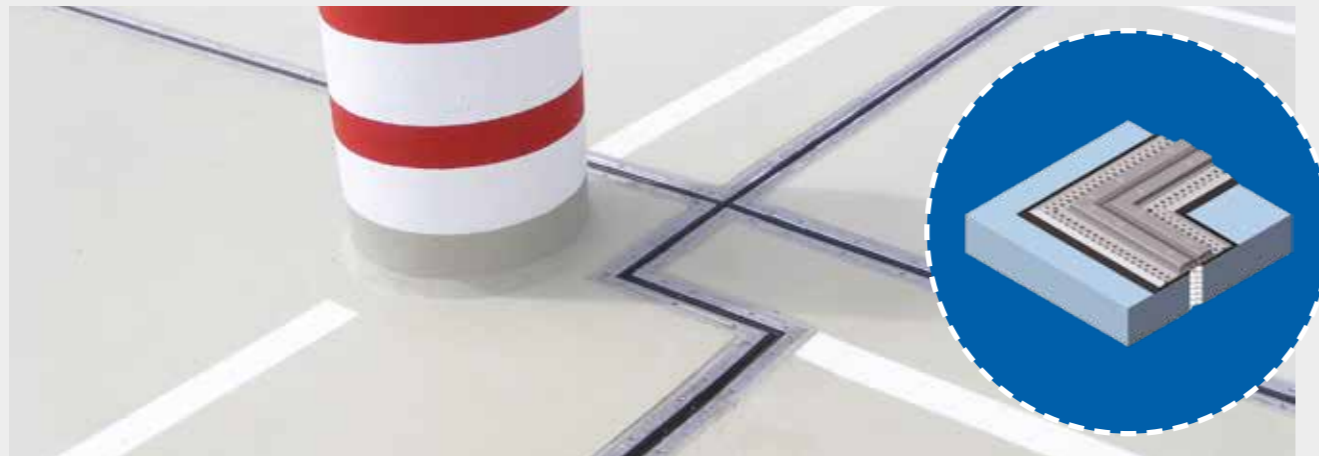
A range of central insert options are available to accommodate varied movement requirements in different car park environments.



## FABRICATIONS FOR MIGUTAN

A comprehensive range of factory fabrications are available to enable both design flexibility and practical installation.

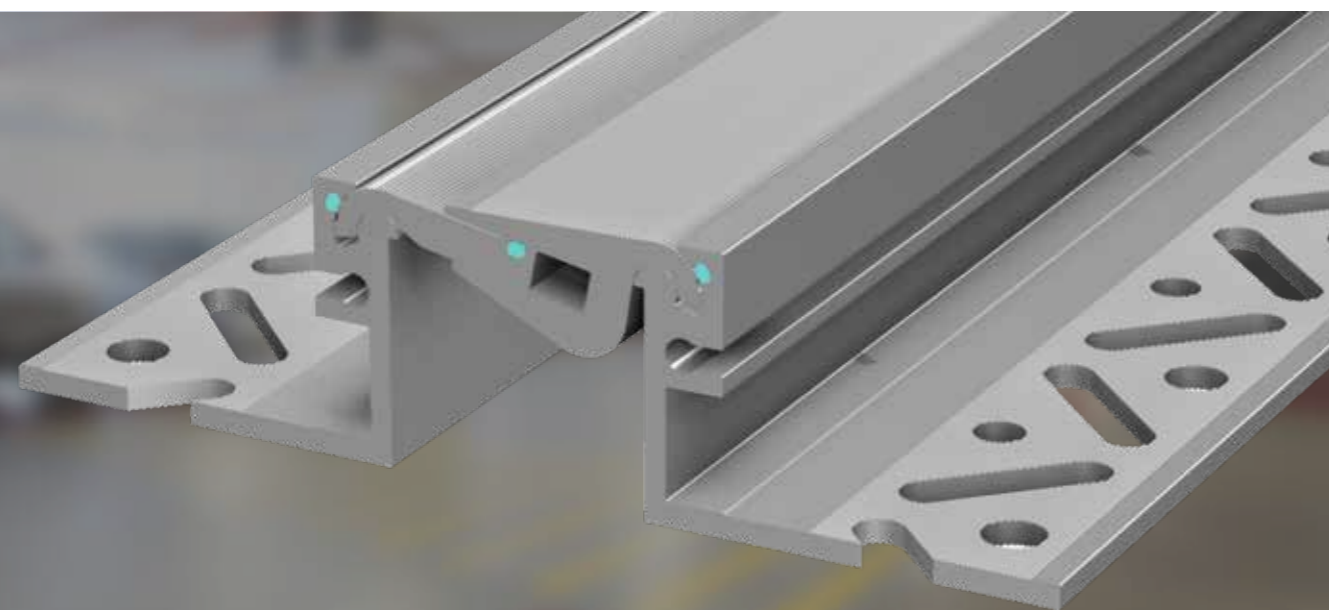
These range from a simple flat corner to more complex intersections; side fix one side to walls or around columns; end termination options and many more allowing the designer to achieve almost any movement joint configuration required.



## ILLBRUCK MOVEMENT JOINTS

TW200 Willseal® 250 is a pre-compressed, self-expanding foam joint sealant with a traffic grade silicone coating engineered to perform in horizontal applications subject to solvents and fuels such as those found in parking garages, road and bridge joints, and airport runways. TW200 is specifically designed to provide a maximum seal in structures with shear and rapid movement.





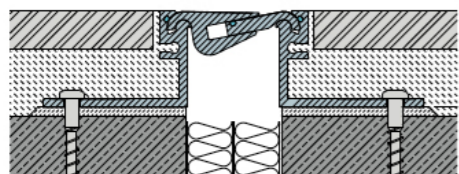
FSX75: For rebated installations

## THE MIGUTRANS SYSTEM (ALL METAL)

A comprehensive range of durable all metal movement joints, with options that can either be laid into a rebate or surface mounted as required. They are suitable for use on both concrete and asphalt decks, and typically used on lower decks where waterproofing may not be a critical issue.

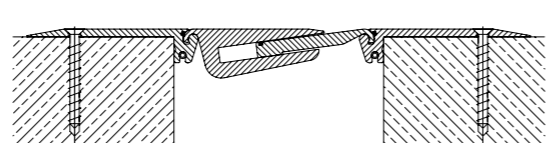
### Rebated Installation

Typical FSL104 rebated installation, suitable for use with both ID Systems.

FSL104:  
For rebated  
installations

### Surface Mounted Installation

Typical FSN75 surface mounted installation, suitable for use with both ID Systems.

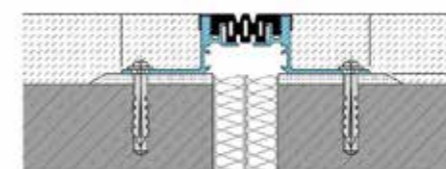
FSN75: For  
surface mounted  
installations

## THE MIGUTEC SYSTEM (RUBBER INSERT)

A comprehensive range of insert type movement joints, with options that can either be laid into a rebate or surface mounted as required. They are suitable for use on both concrete and asphalt decks, and typically used on lower decks where waterproofing may not be a critical issue. Migutec is not suitable for loading areas.

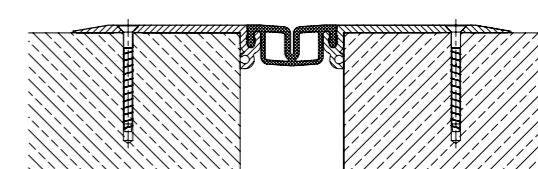
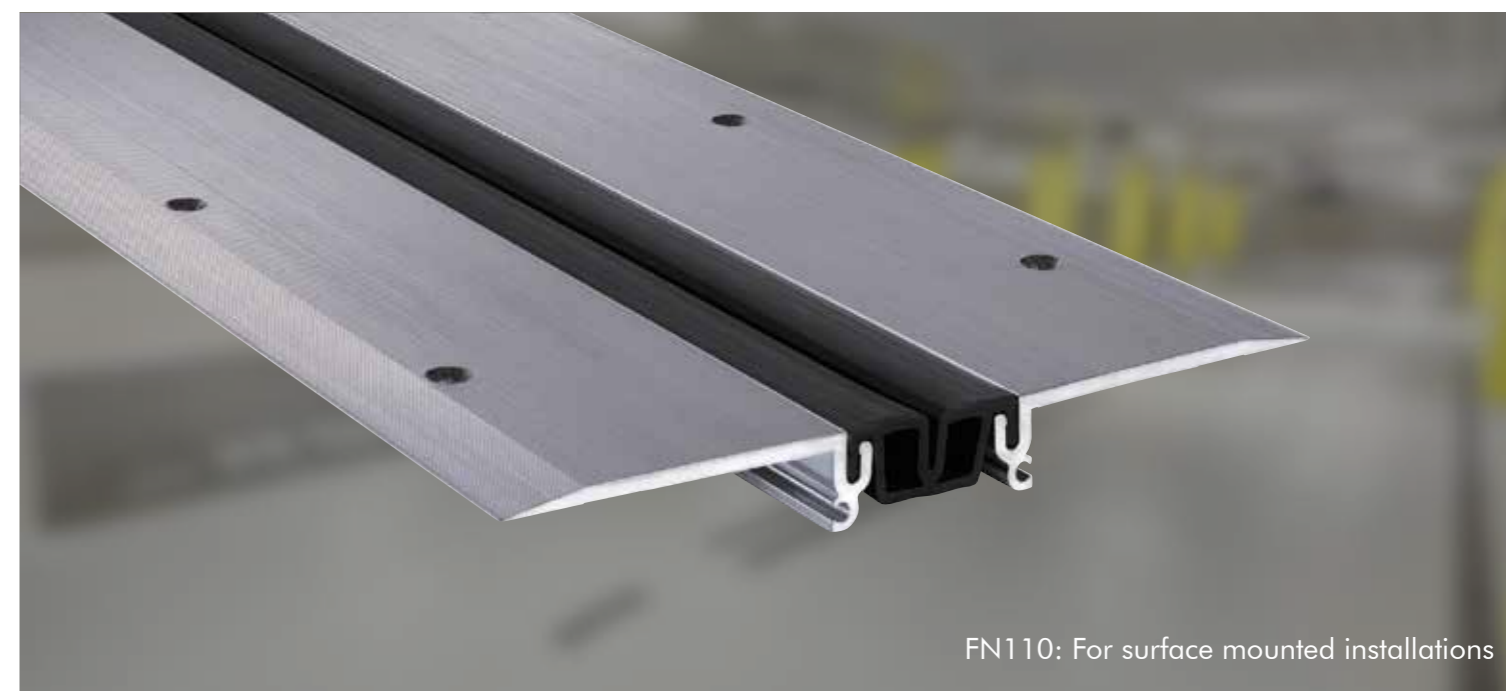
### Rebated Installation

Typical FFP55Ni rebated installation, suitable for use with both ID Systems.

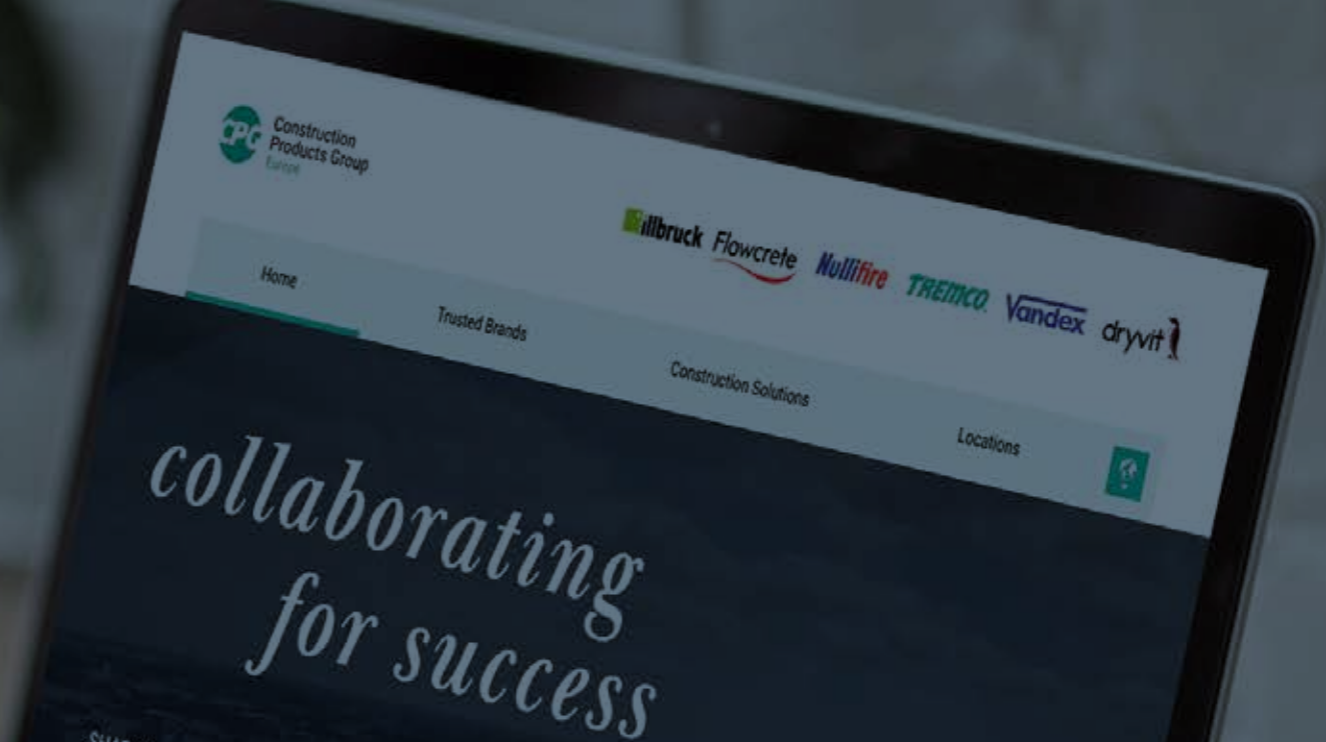
FFP55Ni:  
For rebated  
installations

### Surface Mounted Installation

Typical FN110 surface mounted installation, suitable for use with both ID Systems.

FN110: For  
surface mounted  
installations

FN110: For surface mounted installations



CPG Europe manufactures high performance building materials in order to solve the complex challenges faced by today's construction industry. It is the home for multiple European construction product brands, including illbruck, Flowcrete, Nullifire, Tremco, Vandex and Dryvit. With over 1,400 employees across Europe, we are committed to shaping a world where buildings and structures save energy, last longer and exceed sustainability benchmarks.






From joint sealing, bonding and insulation through to passive fire protection, flooring, waterproofing and roofing solutions – the product brands housed within CPG Europe cover a wide array of different construction needs. Combined with the wealth of expertise, services and support we provide a truly unique offer – to make our customers more successful time after time.

CPG Europe is part of RPM International Inc. – one of the world's leading construction products companies for both the industrial and consumer segments.

Europe's leading construction products brands...



CPG Europe's Core Values

-  Collaboration
-  Honesty & Integrity
-  Respect
-  Engagement
-  Sustainable

Delivering World-Class Construction Product Solutions.

The product brands housed within CPG Europe cover a wide array of different construction needs and provide a wealth of complex services, support and systems that are rarely found together under one roof.



Passive fire protection  
Intumescent Coatings, Fire Stopping



Waterproofing  
Civil Engineering, Potable & Waste Water Industry, Balconies, Terraces, Basements & Foundations



Sealing, bonding & insulation  
Window Insulation, Façade Construction, Exterior Insulation & EIFS, Structural & Inplant Glazing



Flooring  
Seamless Resin Flooring, Subfloor Preparation, Car Parking Structures



Roofing  
Liquid Applied Systems, Felt Systems, Vegetated Roofing



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