



Heavy duty, thick layer, waterproofing and surfacing system for internal car park decks

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# Triflex DFS

## Heavy duty, thick layer, waterproofing and surfacing system for internal car park decks

Following experiences with the partial collapse and failure of car park structures, owners and operators have become more aware of the modes of decay and failure in structural concrete and the requirement for improved safety and performance of car park structures generally. The adequate waterproofing, surfacing and protection of car parks to both rectify existing faults and prevent further degradation has been acknowledged as a primary factor and the majority of refurbishment and new build projects include surface treatments.

One of the major causes of failure in car park structures are Chlorides which are tracked into car parks on vehicle tyres and chassis in the form of de-icing salts. As a result it is often the lower vehicle decks and those with direct access from the surrounding roads which will be subject to the highest volumes of Chlorides. Without adequate waterproofing and a system which can offer long term protection from Chloride ingress, internal decks can actually deteriorate at a faster rate than external decks.

The majority of our competition offer lower specification solutions for internal decks, despite the fact that these can be at greater risk and subject to significantly higher traffic.

These low specification systems can fail prematurely and Triflex therefore only offer offer long term protection and resistance to sustained trafficking.

### The Triflex solution

The Triflex DFS system has been developed over the last 15 years upon the successful concept of the Triflex PDS which was first introduced in 1981. The Triflex DFS is unique in the waterproofing and surfacing industry, featuring a thick layer construction, fully aggregate filled wearing course and resins particularly suited to use in the car park environment.

The system can withstand levels of trafficking which can cause premature failure in the majority of other systems, and with it's monolithic construction and 100% chemical bond will not suffer inter layer delamination. The system has been proven in some of the highest trafficked internal car park decks in Europe. With it's thick layer construction the system can mask profiles, repairs and deck imperfections which can be highlighted by thin layer coatings.

Through the benefit of Triflex experience and technology, the Triflex DFS system offers Best Value for multi-storey car park internal and ground floor car park decks.

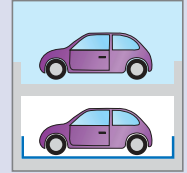
### Design and specification

The Triflex Technical Team can assist clients in the choosing of colours and designs through our specialist rendered visualisation service. Digital images of the existing car park can be professionally rendered to provide a realistic visualisation of what can be achieved.

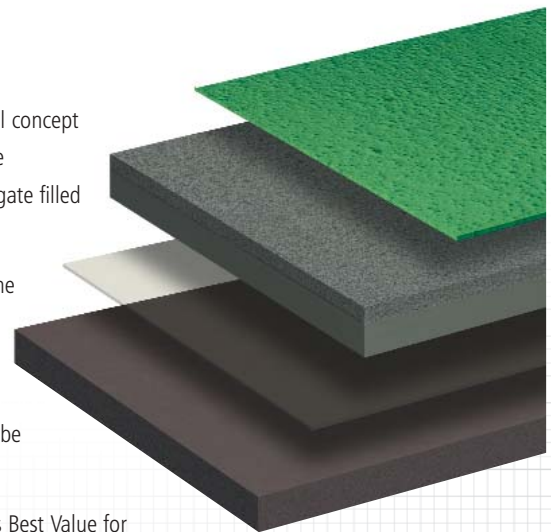
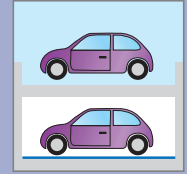
The Triflex Technical Team can also assist in system selection, preparation of model specifications and the provision of project specific CAD details where required.

#### Suitable for:

Waterproofing and surfacing of internal car park decks



Surfacing of internal and underground car park decks



# Triflex DFS

# System Benefits

## Heavy duty, thick layer, waterproofing and surfacing system for internal car park decks

- DURABILITY AND WATERPROOFING** ❑ The Triflex DFS waterproofing and surfacing system features a heavy duty wearing course fully filled with either crystal quartz, basalt or crushed granite. This aggregate is tightly bound within the resin matrix and provides the wearing layer for traffic. Unlike other systems which feature a scattering of anti-skid granules, the Triflex DFS fully aggregate filled wearing course provides long term resistance to wear and damage, and maintains the waterproofing integrity of the membrane.
- THICK LAYER BUILD UP** ❑ With a finished thickness in excess of 4mm, the Triflex DFS has exceptional durability, helps mask deck imperfections and provides a more aesthetically pleasing, easier to maintain system. The system thickness allows profiled substrates such as brushed concrete and crimped asphalt to be overlaid without the original profile reflecting through. In contrast, many competitors systems are less than 2.0mm thick, are less durable, and highlight rather than mask profiles and imperfections in the existing substrate. By following the profile of the existing substrate these thin layer systems are subject to accelerated wear on high spots and will collect dirt in low spots.
- COLD APPLIED WITH RAPID CURE TIMES EVEN AT LOW TEMPERATURES** ❑ All elements of the system are cold applied avoiding the risks and insurance costs associated with hot works. The rapid cure times ensure that areas are rapidly waterproofed, overall time on site is minimised, weather windows can be maximised and areas can be opened to traffic sooner. The system can be applied at temperatures as low as 0°c ensuring that it can be installed all year round. Critical areas can be treated at night and opened to traffic the next morning.
- SUBSTRATE COMPATIBILITY AND CHEMICAL BOND** ❑ The Triflex DFS system is compatible with virtually all substrates likely to be encountered on internal car park decks. The Triflex DFS is suitable for the overlay of existing failed asphalt and Triflex systems are generally acknowledged as the industry leaders in asphalt overlay. The unique properties of the Triflex DFS allow even porous asphalts such as Hot Rolled Asphalt and Stone Mastic Asphalt to be overlaid. In addition, unlike the more commonly available resins, Triflex resins achieve excellent inter layer adhesion, do not suffer inter layer delamination and have excellent resistance to shear forces from vehicle tyres.
- REINFORCED DETAILING** ❑ All critical details and higher risk areas such as movement zones incorporate our unique reinforcement to provide the maximum security and resistance to flexural fatigue. The detailing material, Triflex prodetail is CE marked, and has a European Technical Approval with a 25 year durability statement. Less critical details can be economically treated using our specialist fibre reinforced resin.
- HIGH LEVELS OF ANTI-SKID** ❑ Ensuring that the surface will provide adequate levels of slip resistance for both pedestrians and cars, making the car park safer, reducing the potential for accidents and providing an accepted defensible standard against claims.
- AESTHETICS** ❑ All Triflex resins are UV stable and use UV stable inorganic pigments meaning that colour is retained over time. Our Triflex Finish can be produced in virtually any colour, meaning that aesthetic and design requirements can be fulfilled.
- SIMPLE MAINTENANCE** ❑ The Triflex DFS can easily be cleaned and maintained using conventional methods.
- COMMITMENT TO THE ENVIRONMENT** ❑ The Triflex environmental policy is certified under ISO 14001. All Triflex car park waterproofing, surfacing and protection systems are solvent and isocyanate free.
- RE-USABLE CONTAINERS** ❑ To minimise the impact on landfill, all core resins are available in re-usable 1,000kg stainless steel containers.
- QUALITY ASSURED MANUFACTURING** ❑ As all materials are manufactured to ISO9001 you can be assured of consistent quality.
- QUALITY DESIGN AND SPECIFICATION ASSISTANCE** ❑ The Triflex Technical Team can assist in all areas of the design and specification process from preparing initial rendered visualisations to project specific specifications and sketch details.
- QUALITY INSTALLATION** ❑ Triflex car park waterproofing and surfacing systems are only installed by our Approved Contracting Partners who have been selected for their ability to provide the highest level of client service.
- WARRANTIED PROTECTION** ❑ The Triflex DFS system is offered as standard with a 10 year materials warranty. Other warranties are available – please contact Triflex (UK) Limited directly for details.



# Triflex DFS

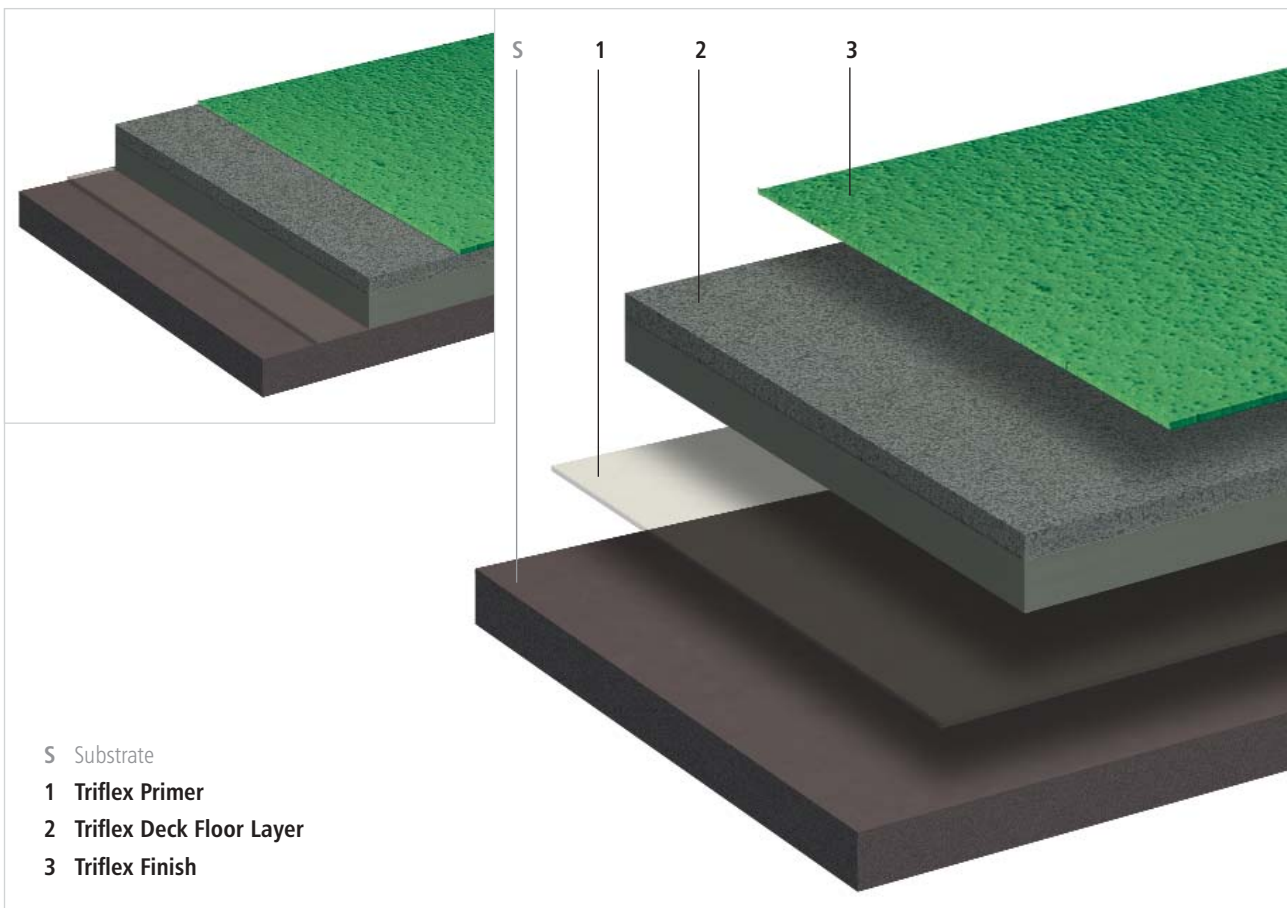
# System Data Sheet

Heavy duty, thick layer, waterproofing and surfacing system for internal car park decks

## Properties

- Waterproof, thick layer system
- Anti-skid - SRT 70-81
- Available with the following finish options:
  - 0.7-1.2mm crystal quartz with pigmented seal
  - 1.0-1.6mm basalt with Traffic Grey pigmented seal
  - 1.0-2.0mm crushed granite with Traffic Grey pigmented seal
- Tough – highly abrasion resistant
- Exceptionally fast curing
- Cold applied
- Compatible with a wide range of substrates
- Seamless
- Flexible
- Fire resistant EN ISO-11925-2:2002  
EN ISO-9239-1:2002
- Chemical resistant
- Resistant to Chloride and Carbon Dioxide ingress
- Vapour permeable
- Low temperature curing-0°c
- UV resistant
- Solvent free
- Isocyanate free
- Tailored design options

## System Build Up



## System Details

**Triflex Primer** - Primer for sealing of substrate and to improve adhesion.

**Triflex Deck Floor Layer** - Waterproof, self levelling surfacing layer with hard wearing crystal quartz, basalt or crushed granite aggregate.

**Triflex Finish** - Abrasion resistant system seal coat.

## Applications

The system is suitable for the waterproofing and surfacing, or surfacing only of internal and underground car park decks.

# Triflex DFS

# System Data Sheet

## Substrate preparation and priming

Substrate	Preparation Notes	Priming	
		Triflex DFS main area	Triflex prodetail* for details
Asphalt	1	Triflex Cryl Primer 222	Triflex Cryl Primer 222
Hot Rolled Asphalt (HRA)	1 / 8	Triflex Cryl Primer 222	Triflex Cryl Primer 222
Stone Mastic Asphalt (SMA)	1 / 8	Triflex Cryl Primer 222	Triflex Cryl Primer 222
Felt	2	N/A details only	No primer required
SBS Felt	2	N/A details only	No primer required
APP Felt	3	N/A details only	No primer required
Concrete / Screed	1 / 6	Triflex Cryl Primer 276	Triflex Cryl Primer 276
Lightweight concrete	1 / 6	Triflex Cryl Primer 276	Triflex Cryl Primer 276
Polymer modified concrete repair materials	1 / 6	Triflex Cryl Primer 276	Triflex Cryl Primer 276
Steel	4	N/A details only	No primer required
Galvanised steel	4	N/A details only	No primer required
Stainless steel	4	N/A details only	No primer required
Aluminium	4	N/A details only	No primer required
Copper	4	N/A details only	No primer required
Zinc	4	N/A details only	No primer required
Lead	4	N/A details only	No primer required
Glass	4	N/A details only	No primer required
Wood	2	N/A details only	Triflex Cryl Primer 276
Plastics (sheets, coatings, mouldings)			
CPE	4	N/A details only	No primer required
EVA	2	N/A details only	No primer required
PIB	2	N/A details only	No primer required
PVC-P, nB	4	N/A details only	No primer required
UPVC	4	N/A details only	No primer required
GRP	4	N/A details only	No primer required
PU (polyurethane)	5 / 7	No primer required	No primer required
PMMA (acrylic)	5 / 7	No primer required	No primer required
UP (polyester)	5 / 7	No primer required	No primer required
EP (epoxy)	5 / 7	No primer required	No primer required

For other substrates, consult Triflex (UK) Limited for required preparation methods and priming.

### Notes:

- 1 = Scarify, grind or lightly bead blast
- 2 = Clean thoroughly
- 3 = Liquefy surface by application of heat and immediately top with quartz
- 4 = Rub down thoroughly with Triflex Cleaners, and sand/grind metals and hard plastics  
(steel must be ground or blasted to bright metal)
- 5 = Lightly sand and carry out adhesion test
- 6 = The equilibrium moisture content of cementitious substrates must not exceed 6% or 75% RH. Where moisture levels are in excess of 6% equilibrium moisture or 75% RH refer to Triflex Pox R103.
- 7 = Must be applied over dimensionally stable, fully bonded substrate with a minimum hardness of 25N/mm<sup>2</sup> and subject to approval by Triflex (UK) Limited.
- 8 = For HRA and SMA, increase primer consumption by 50% and use maximum practical catalyst (minimum 6%).

Where there are any doubts as to adhesion, carry out an adhesion test.

# Triflex DFS

# System Data Sheet

Heavy duty, thick layer, waterproofing and surfacing system for internal car park decks

## Substrate Assessment

In all cases the condition and stability of the underlying substrate should be assessed prior to the commencement of work. See Substrate Testing section. Concrete structures should be designed in accordance with BS8110/CP110.

## Substrate Preparation

Refer to substrate preparation and priming schedule.

Generally:

Remove existing paint and finishes etc. by grinding.

Ensure that the prepared surface is clean, dry and free from dust, laitence, grease, oil and any other contaminants.

## Priming

Refer to substrate preparation and priming schedule.

### Triflex Cryl Primer 222:

Apply with a lambswool roller (0.4kg/m<sup>2</sup> min.)

Rainproof after approx. 30 minutes.

Can be walked upon/next coat applied after approx. 45 minutes.

### Triflex Cryl Primer 276:

Apply with a lambswool roller (0.4kg/m<sup>2</sup> min.)

Rainproof after approx. 30 minutes.

Can be walked upon/next coat applied after approx. 45 minutes.

**Note:** For new cementitious materials where it is not practical to allow the substrate to hydrate to below 6% equilibrium moisture content and 75% RH, or for existing cementitious substrates with higher levels of moisture, Triflex Pox R103 can be used where the equilibrium moisture content is less than 10%.

### Triflex Pox R103:

Apply with a lambswool roller (0.5kg/m<sup>2</sup> min.)

Can be walked on after approx. 8 hours.

Next coat applied after approx. 18 hours.

Able to withstand stress after approx. 24 hours.

## Surface Repairs and Filling

Cut out blisters and repair all minor indentations with scratch coat of Triflex Cryl RS 233. Allow to dry for a minimum of 1 hour.

Fill all voids in vertical surfaces and at upstand transitions with Triflex Cryl Paste and allow to dry for a minimum of 1 hour.

Larger indentations can be filled with Triflex RS 240 (cementitious substrates), Triflex Cryl Mortar or Triflex Cryl Paste Mortar (non-cementitious substrates).

## Dynamic Cracks and Dayjoints

Remove any existing filler material and fill with Triflex Cryl RS 233.

Apply Triflex Cryl R 210 (1.5kg/m<sup>2</sup> min.) with a lambswool roller.

Roll a strip of Triflex 110g Reinforcement into the wet resin, pressing trapped air free using the lambswool roller, ensuring a minimum 50mm overlap between the reinforcement sheets.

Apply Triflex Cryl R 210 (1.0kg/m<sup>2</sup> min.) wet on wet to ensure full saturation of the fleece. Allow to dry for a minimum of 1 hour.

Minimum fleece overlap either side of dynamic crack/dayjoint - 75mm.

**Note:** Identification of Dynamic Cracks should include a survey of the soffit (where visible).

## Interface Details

Apply in accordance with standard and project specific sketch details.

### General Details:

Apply Triflex prodetail® (2.0 kg/m<sup>2</sup> min.) with a lambswool roller.

Roll a strip of Triflex 110g Reinforcement into the wet resin, pressing trapped air free using the lambswool roller, ensuring a minimum 50mm overlap between the reinforcement sheets.

Apply Triflex prodetail® (1.0 kg/m<sup>2</sup> min.) wet on wet to ensure full saturation of the fleece.

Rainproof after approx. 30 minutes

Can be walked on/next coat applied after approx. 45 minutes.

### Complex and Less Critical Details:

Where due to access restrictions, or complexity of the detail, prodetail® is not practical, or where the detail is less critical, e.g upstands at high points:

Apply Triflex Cryl R 295 fibre reinforced resin (1.5 kg/m<sup>2</sup> min.) with a brush and allow to cure for a minimum of 45 minutes.

Apply a further layer of Triflex Cryl R 295 fibre reinforced resin (1.5 kg/m<sup>2</sup> min.) by brush.

Rainproof after approx. 30 minutes.

Can be walked upon/next coat applied after approx. 45 minutes.

### Notes:

For guidance on the treatment of individual details consult Triflex (UK) Limited.

Where details may be subject to mechanical damage from vehicles, consult Triflex (UK) Limited for mechanical protection solutions.

## Main Deck - Deck Floor Layer

Apply Triflex Cryl RS 233 (4.0kg/m<sup>2</sup> min.) by trowel.

Embed into the wet Triflex Cryl RS 233 a full cover of crystal quartz (0.7-1.2mm), basalt (1.0-1.6mm), or crushed granite (1.0-2.0mm) (5.0kg/m<sup>2</sup>) approx. Allow to dry for a minimum of 2 hours, sweep away excess aggregate and vacuum clean.

Rainproof after approx. 30 minutes.

Can be walked upon after approx. 1 hour.

Next coat applied after approx. 2 hours.

## Finish

### Interface Details

Apply Triflex Cryl Finish 205 (0.5kg/m<sup>2</sup>min) using a lambswool roller.

Rainproof after approx. 30 minutes.

Can be walked upon after approx. 1 hour.

**Note:** For interface details in excess of 250mm high, use Triflex Cryl Finish 205 Thixo.

### Main Deck

Apply Triflex Cryl Finish 205 (0.65kg/m<sup>2</sup> min.), (0.80kg/m<sup>2</sup> min.) if over basalt or crushed granite using a hard squeegee and a dry lambswool roller.

Rainproof after approx. 30 minutes.

Can be walked upon after approx. 1 hour.

Can be driven upon after approx. 3 hours.

# Triflex DFS

# System Data Sheet

Heavy duty, thick layer, waterproofing and surfacing system for internal car park decks

## Expansion Joints

Consult Triflex (UK) Limited for confirmation of design details required.

## Interruptions During Works

If work is interrupted for more than 12 hours, use Triflex Cleaner to clean and reactivate the transition area.

Evaporation time: at least 20 minutes - overlay within 60 minutes.

For reinforced details, the subsequent waterproofing layers must overlap by at least 100 mm, including the Reinforcement.

## System Components

Please refer to the appropriate Product Data Sheet for details about areas of application/application conditions/mixing instructions (available on request):

**Triflex Cryl Primer 222**

**Triflex Cryl Primer 276**

**Triflex Pox R103**

**Triflex Cryl Paste**

**Triflex RS 240**

**Triflex Cryl Mortar**

**Triflex Cryl Paste Mortar**

**Triflex Cryl R 210**

**Triflex 110g Reinforcement**

**Triflex prodetail®**

**Triflex Cryl R 295**

**Triflex Cryl RS 233**

**Triflex Cryl Finish 205**

## Quality Standard

All products are manufactured to ISO 9001.

## Substrate Testing

Prior to the commencement of work the Contractor must check and only proceed if he has satisfied the following requirements.

**Hardness:** All concrete substrates, concrete repair materials, screeds and mortars shall be cured and allowed to achieve a minimum hardness of 25N/mm<sup>2</sup>.

**Moisture:** Prior to overlay with Triflex systems, the equilibrium moisture content of the substrate must not exceed 6% and 75% RH. For cementitious substrates with higher levels of moisture (less than 10% equilibrium) refer to Triflex Pox R103.

**Adhesion:** Trial areas to be prepared to ensure that the System achieves a minimum bond to the substrate of:

Concrete, concrete repair materials, screeds and mortars: 1.5N/mm<sup>2</sup>

All other substrates: 0.8N/mm<sup>2</sup>

## Health and Safety

Refer to product Health and Safety data prior to using the materials.

## Coverage Rates

The coverage rates given are guidelines based on smooth, level substrates. Allowances must be made if the substrate is uneven, rough or porous.

## Drying Times

The drying times stated are at +20°C and are dependent upon weather conditions.

## Important Notes

It is the Contractors' responsibility to ensure that the substrate is suitable and that the system is applied in all areas in accordance with Technical Data Sheets and Application Guidelines in force at the time.

The advice we can provide on the application of our products is based on extensive development work as well as many years of experience and is given to the best of our knowledge. However, the wide variety of requirements for a building under the most diverse conditions mean that it is necessary for the Contractor to test the product for suitability in any given case. We reserve the right to make alterations in keeping with technical developments or improvements.

# Triflex DFS

# Model specification

Heavy duty, thick layer, waterproofing and surfacing system for internal car park decks

## J31 Liquid Applied Waterproof Roof Coatings

To be read with Preliminaries / General Conditions.

### Liquid Applied Waterproof Roof Coating reference

#### Triflex DFS

Manufacturer:

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Stone

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Web: www.triflex.co.uk

### Generally

Apply Triflex DFS system fully in accordance with Manufacturer's System Data Sheet (Appendix ), standard Sketch Details (Appendix ) and project specific Sketch Details (Appendix ).

### Substrate Assessment

Assess substrate in accordance with Triflex DFS System Data Sheet.

### Substrate Preparation

Prepare substrate in accordance with Triflex DFS System Data Sheet.

### Priming

Apply Triflex primer in accordance with Triflex DFS System Data Sheet.

**Primer reference:** Triflex Cryl Primer 222 / Triflex Cryl Primer 276 / Triflex Pox R103.

### Surface Repairs and Filling

Repair and fill surface in accordance with Triflex DFS System Data Sheet.

**Filling reference:** Triflex Cryl RS233 / Triflex Cryl Paste / Triflex Cryl RS240 / Triflex Cryl Mortar / Triflex Cryl Paste Mortar.

### Dynamic Cracks and Dayjoints

Treat dynamic cracks and dayjoints in accordance with Triflex DFS System Data Sheet.

**Filling reference:** Triflex Cryl RS233.

**Overbanding reference:** Triflex Cryl R210 with 110g Reinforcement.

### Interface Details

Apply interface details in accordance with Triflex DFS System Data Sheet, standard Sketch Details and project specific Sketch Details.

**General details reference:** Triflex prodetail with 110g Reinforcement.

**Complex details reference:** Triflex Cryl R295.

### Main Deck

Apply waterproofing and surfacing to main deck area in accordance with Triflex DFS System Data Sheet.

**Waterproofing reference:** Triflex Cryl RS233.

**Aggregate reference:** crystal quartz / basalt / crushed granite.

## Finish

Apply finish in accordance with Triflex DFS System Data Sheet.

**Finish reference:** Triflex Cryl Finish 205.

**Finish colour references:** (INSERT).

## Installation

The works shall be executed by a Triflex Approved Contracting Partner licensed to install Triflex car park waterproofing, surfacing and protection systems.

## Required system properties

- Waterproof
- Dry film thickness > 4mm
- Anti-skid – SRT 70-81
- Available in a wide range of colours and textures
- Fast curing (maximum 3 hours before trafficking)
- Totally cold applied
- Compatible with a wide range of substrates
- Seamless
- Flexible
- Fire resistant
- Chemical resistant
- Resistant to Chloride and Carbon Dioxide ingress
- Vapour permeable
- Suitable for application at temperatures as low as 0°C
- UV resistant
- Solvent free
- Isocyanate free
- Standard 10 year materials warranty
- Optional extended warranty

## General notes

The Triflex DFS System Data Sheet, standard Sketch Details and project specific Sketch Details are to be read as an integral part of this specification.

The Triflex Approved Contracting Partner is to install all details to comply with the Triflex DFS standard Sketch Details, any project specific Sketch Details and Triflex project specific recommendations. Should any detail arise where the treatment is not clear, the Contractor must seek advice and approval from Triflex (UK) Limited prior to commencing the works.

It is the Contractor's responsibility to ensure that the substrate is suitable and that the system is applied in all areas in accordance with System Data Sheets and Application Guidelines in force at the time.

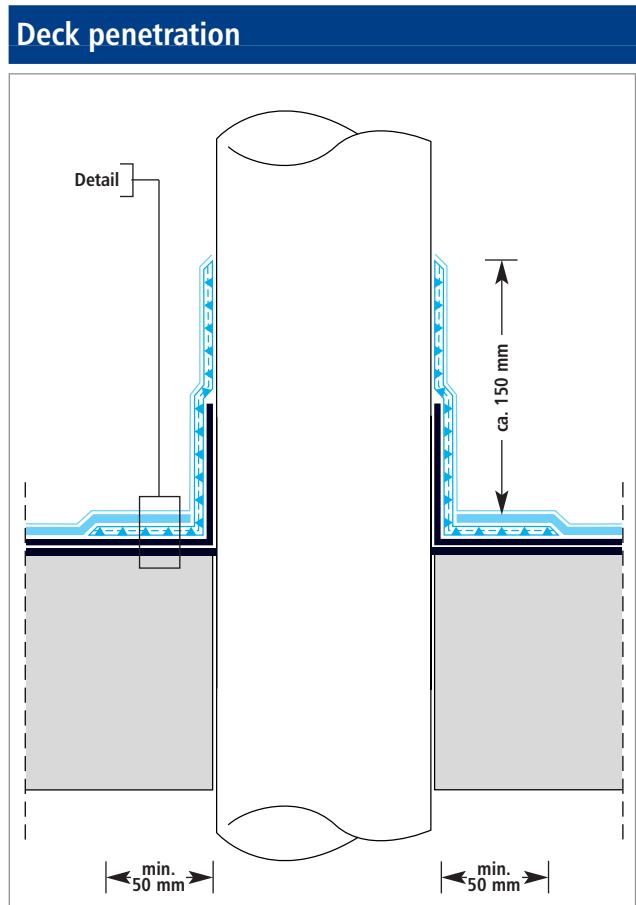
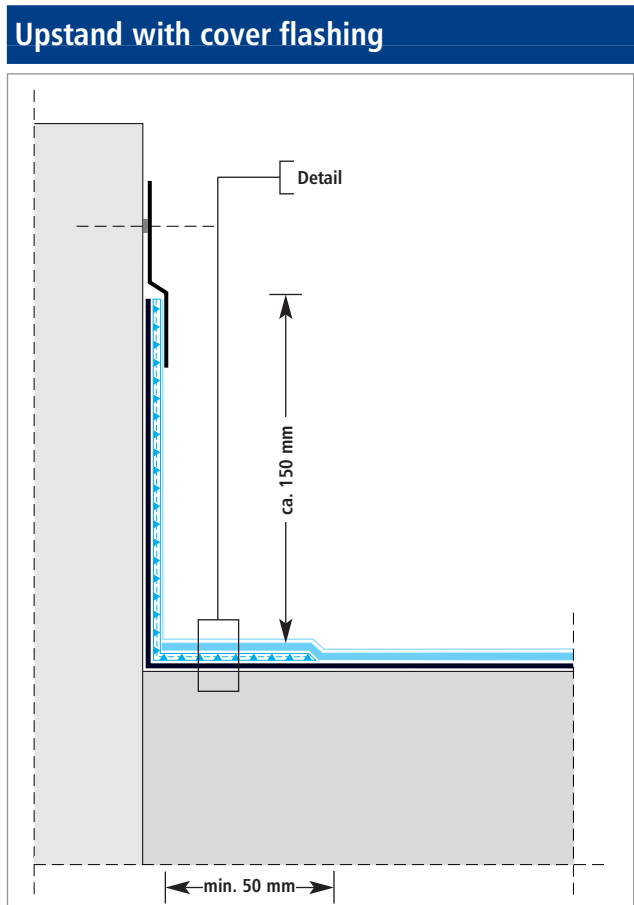
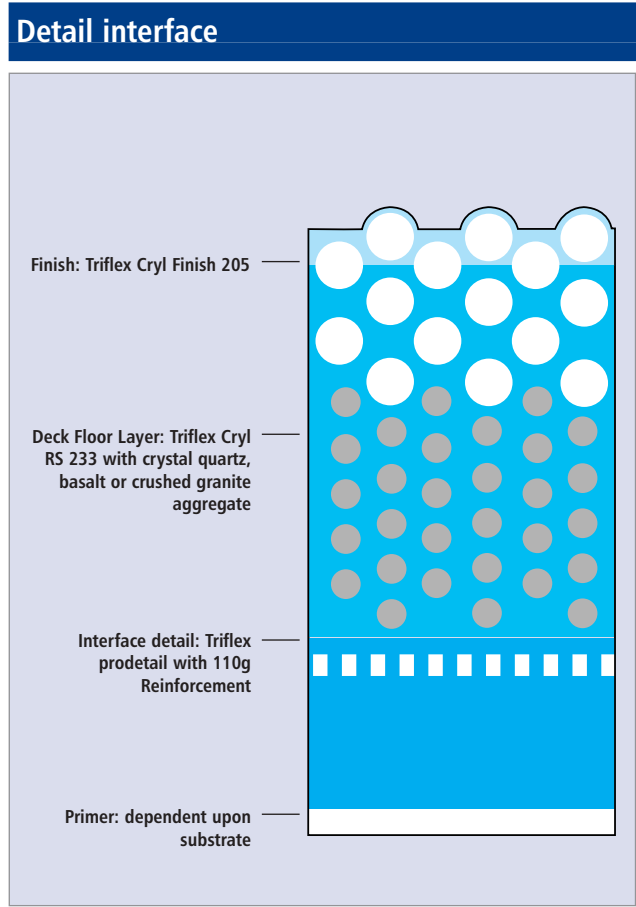
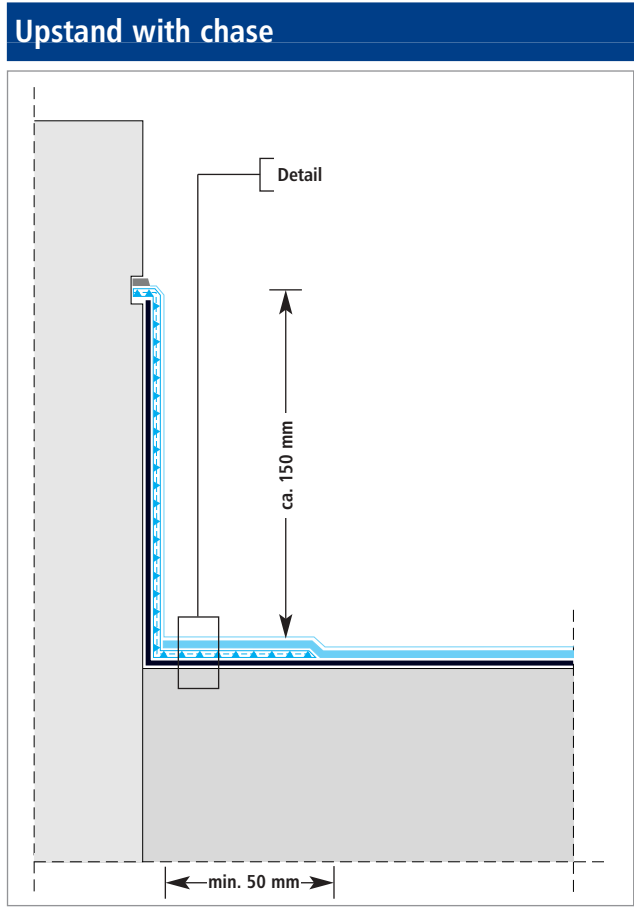
## Notes to specifiers

We recommend that for all car park projects, the actual specification clauses for the Triflex waterproofing, surfacing and protection systems are prepared by the Triflex Technical Team.

This information can then be provided in a text format for insertion into Word and other documents.

# Triflex DFS

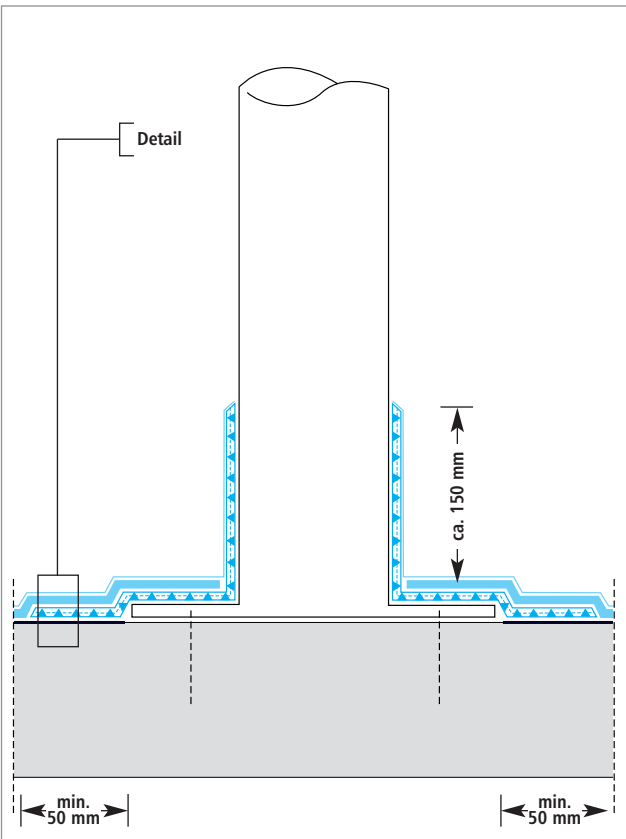
# Sketch Details



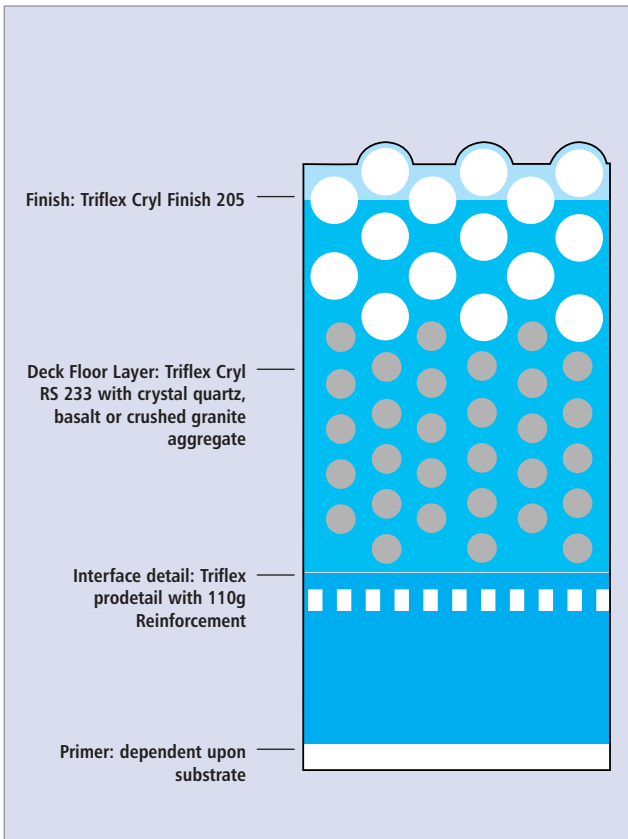
# Triflex DFS

# Sketch Details

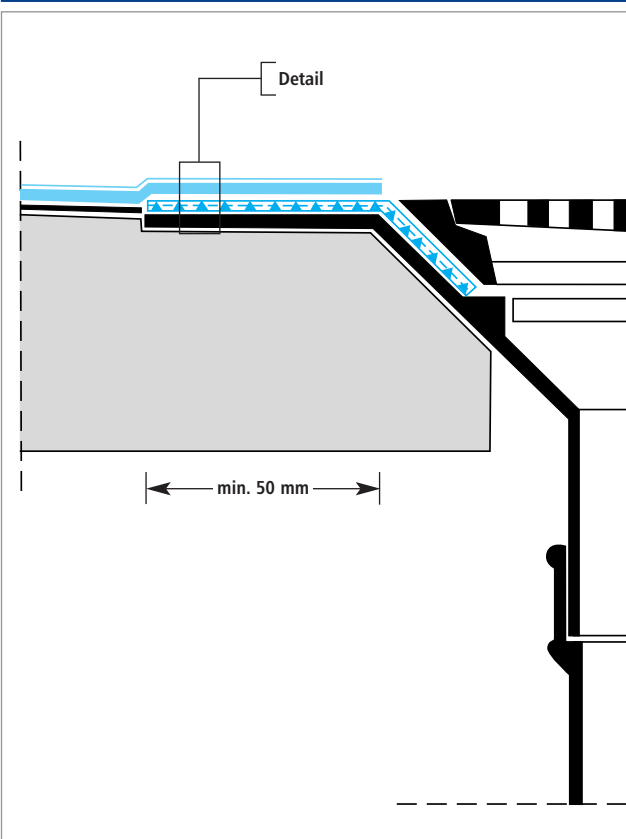
## Surface mounted detail



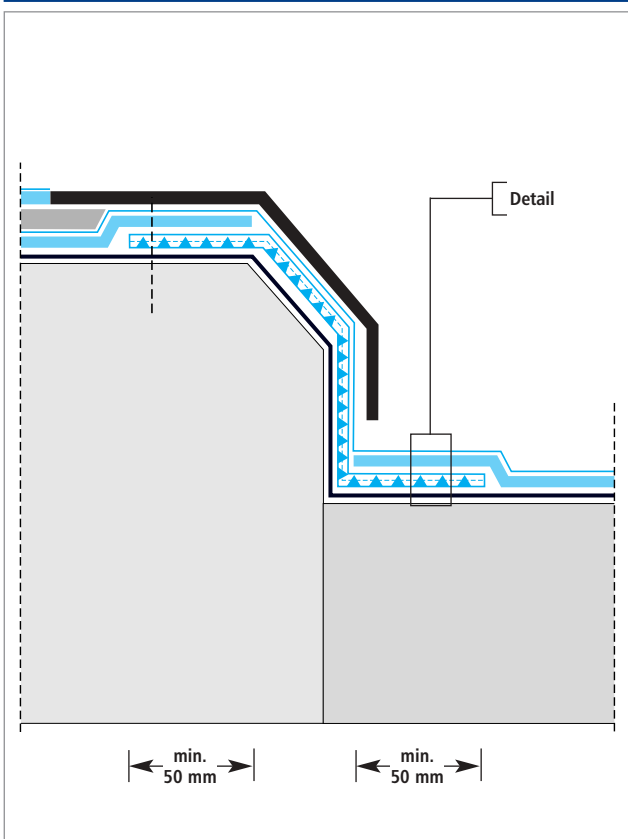
## Detail interface



## Gully



## Cast insitu kerb



# Triflex DFS

# Sketch Details

