StoCretec

Building with conscience.

Multi-storey and underground car parks

Solutions for floor coating and concrete repair

Floor coating

Concrete repair and concrete protection

Do you want to extend the service life of a multi-storey car park to make it more profitable or even increase its value? Our system solutions for floor coating and concrete repair preserve or increase the stability of your construction works, protect the building fabric and facilitate customised colour concepts. You will also benefit from comprehensive services, many years of experience, and the expertise of the Sto Group.

Contents

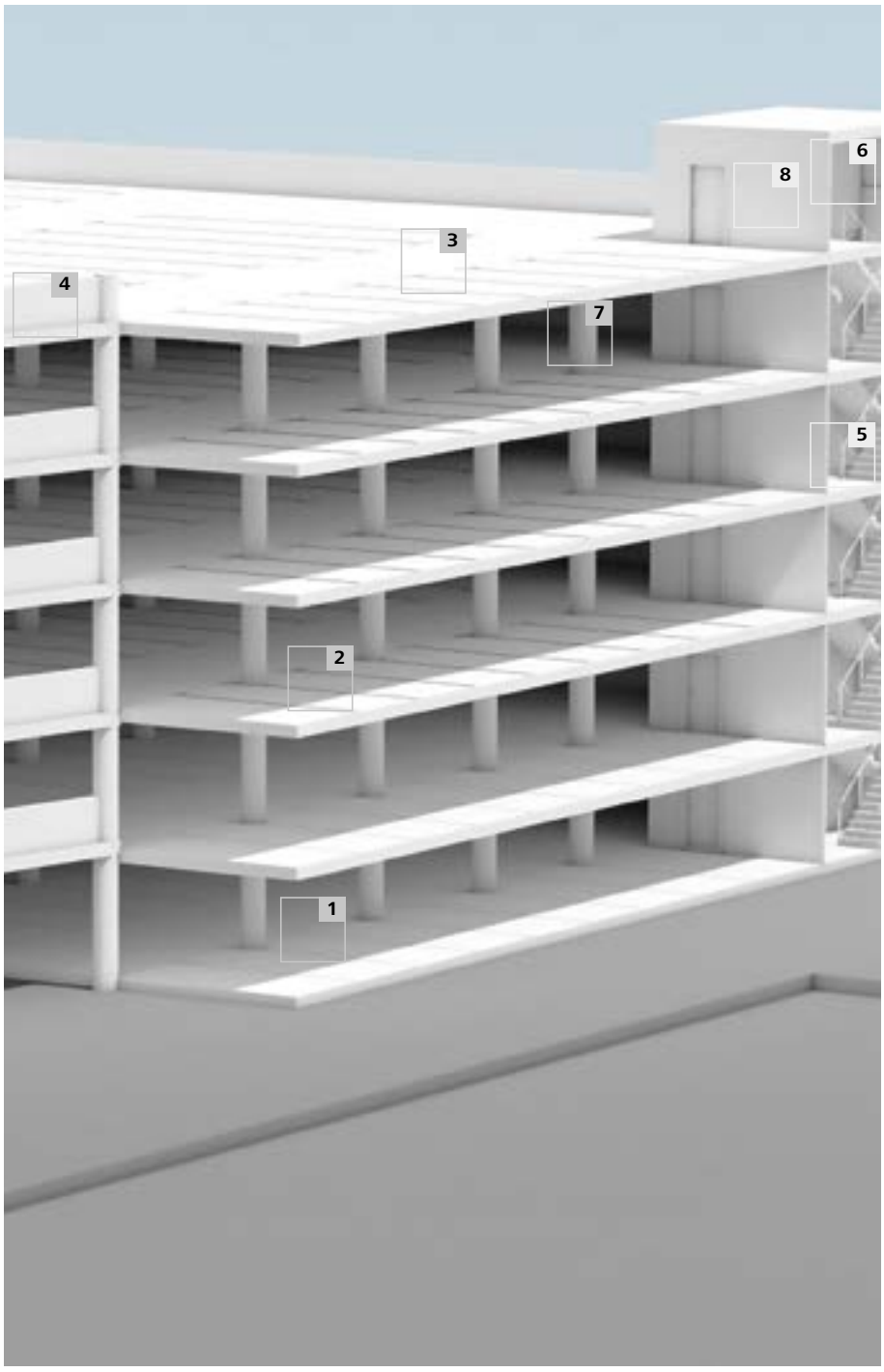
Editorial

Floor coating

Cover photo reference:
Underground car park, Ettlingen, GER
StoCretec expertise: StoFloor Traffic Elastic BA 2000, StoConcrete Repair Prime TG 203, StoConcrete Protect V
Photo: MediaProd, Hans Jörg Götz

Concrete repair and concrete protection

Building consciously on expertise, retaining value



Areas of application for our products

1 Floor slab
(often also constructed as a white tank)

2 Intermediate deck
(open or closed to the side)

3 Exposed deck

4 Ramps

5 Pedestrian areas

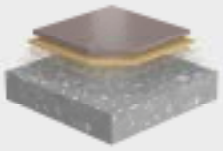
6 Staircase

7 Supports/walls

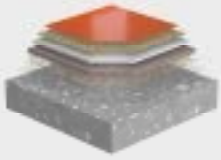
8 Facade

Your goal is to extend the service life of a multi-storey car park or even increase its value. And in the process you must keep an eye on cost-effectiveness, downtime during refurbishment work, and the needs of the end customer. With our system solutions for floor coating and concrete repair, you can preserve or increase the stability of your construction works, protect the building fabric and facilitate customised design concepts.

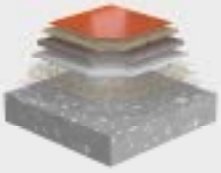
System solutions for exposed decks



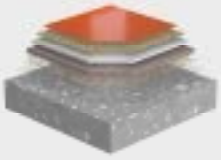
StoFloor Traffic Elastic
PM MultiBase (OS 10)



StoFloor Traffic Elastic EZ 500
(OS 11a, OS 11b, OS 14)

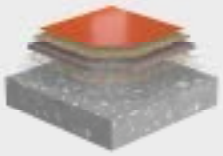


StoFloor Traffic Elastic
BA 2000 (OS 10)

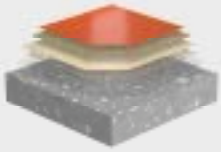


StoFloor Traffic Elastic
SC 300 (OS 10)

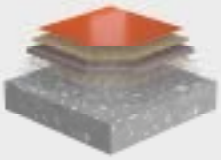
System solutions for ramps



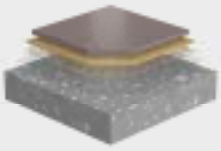
StoFloor Traffic Elastic 590 EP
(OS 8)



StoFloor Traffic DV 100
(OS 8)

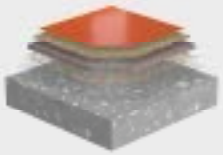


StoFloor Traffic RZ 500
(OS 8)

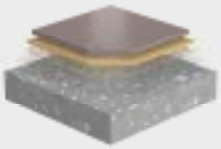


StoFloor Traffic Elastic
PM MultiBase (OS 10)

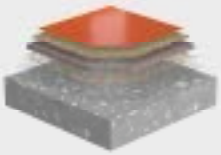
System solutions for intermediate decks



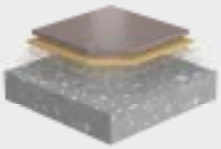
StoFloor Traffic Elastic
TEP MultiTop (OS 11b)



StoFloor Traffic Elastic
PM MultiBase (OS 10)

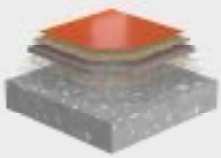


StoFloor Traffic Elastic
EZ 500 (OS 11a, OS 11b, OS 14)

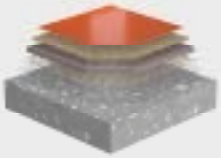


StoFloor Traffic Elastic
SC 300 (OS 10)

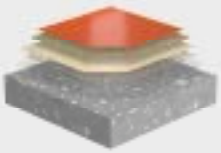
System solutions for floor slabs



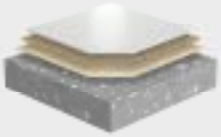
StoFloor Traffic Elastic 590 EP
(OS 8)



StoFloor Traffic WL 100
(OS 8)



StoFloor Traffic DV 100
(OS 8)



StoFloor Traffic BB OS
(OS 8)

Coating systems for floors

Surface protection retains service value for the long term

There is virtually no other kind of building that varies so greatly in terms of size, shape, and stress levels as multi-storey and underground car parks. The spectrum ranges from single-storey underground car parks in apartment buildings to large parking complexes at airports. What's more, parking structures are under enormous cost pressure. That is why simple concrete structures were used in the past. Parking decks were largely open. Not even areas subject to significant traffic were protected.

And yet the stress put on reinforced concrete inside car parks is extremely high.
Vehicles carry water along with them, which contains soluble harmful substances. Exhausts lead to a carbon dioxide concentration that is much higher than usual. Driving on the concrete surfaces generates vibrations, resulting in fine cracks. It is then easier for harmful substances to get inside, causing damage to reinforcing steel and concrete at a much faster rate.

Nowadays, surface protection is part of the planning for new buildings. An attractive colour concept also means the multi-storey car park can be designed with an open and pleasant look. This increases customer acceptance and safeguards your turnover in the long term.

Image on left:
Sparkasse underground car park, Aachen, GER
StoCretec expertise: StoFloor Traffic Elastic 590 EP, StoFloor Traffic WL 100, StoPox EZ 535, StoConcrete Protect V
Photo: Guido Erbring

Image on right:
District of Wydenbrück underground car park, Paderborn, GER
StoCretec expertise: StoFloor Traffic Elastic 590 EP, StoConcrete Protect Elastic FB, StoConcrete Protect V
Photo: Photomax, Dietmar Flach


Busdorfmauer 13

Solutions for floor slabs

Standing firm against rising damp

Floor slabs show only minor crack movements caused by loads or temperature fluctuations. That is why rigid surface protection systems are suitable for protecting the building fabric. Damage may occur, however, if there is no waterproofing layer under the substrate or if said layer has been applied improperly. Rising damp can cause the coating build-up to peel off. And if that happens, its functionality is no longer guaranteed. Our system solutions for floor slabs have proven their suitability against rising damp.

Image on right:
Illuster shopping centre underground car park, Uster, CH
StoCretec expertise:
StoFloor Traffic Elastic 590 EP
Photo: fotowerder.ch

System solutions for floor slabs

System	StoFloor Traffic Elastic 590 EP	StoFloor Traffic BB OS	StoFloor Traffic DV 100	StoFloor Traffic WL 100
System description	Epoxy resin multi-storey car park system, permeable to water vapour, crack bridging	Epoxy resin multi-storey car park system, standard	Epoxy resin multi-storey car park system, slip-resistant	Epoxy resin multi-storey car park system, water-based, permeable to water vapour
Properties	· Crack bridging · Very good wear resistance · Water vapour permeable · Suitable in the case of rising damp · Limited combustibility · Impermeable to radon in accordance with IAF testing (Radeberg) · Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	· Very good wear resistance · Suitable in the case of rising damp · Low-emission* · Limited combustibility · Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	· Very good wear resistance · Suitable in the case of rising damp · Limited combustibility · Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	· Very good water-vapour transmission rate · Suitable in the case of rising damp · Low-emission* · Free from benzyl alcohol · Limited combustibility · Certificate of compliance in accordance with DIN V 18026, surface protection system OS 8
System build-up				
Primer	StoPox GH 502		StoPox GH 502	StoPox WG 100
Surface overlay		StoPox GH 502 + StoQuarz or StoPox GH 530 + StoQuarz	StoPox GH 502 + StoQuarz	StoPox WG 100 + StoQuarz
Broadcasting	StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm
Wearing course	StoPox 590 EP			
Broadcasting	StoQuarz 0.3–0.8 mm			
Sealing coat	StoPox DV 100	StoPox BB OS	StoPox DV 100	StoPox WL 100

* according to the criteria of the Committee for Health-related Evaluation of Building Products (AgBB)

Highlight

StoFloor Traffic Elastic 590 EP

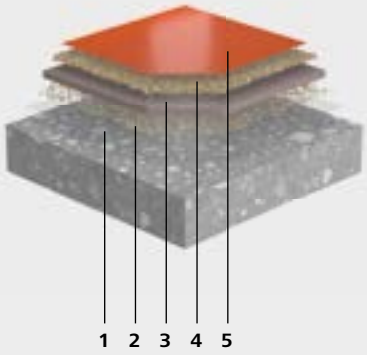
Our StoFloor Traffic Elastic 590 EP system solution is simultaneously crack bridging and permeable to water vapour. It protects surfaces subject to vehicle traffic made of reinforced concrete against penetrating water and the soluble harmful substances it contains. It prevents damage caused by chloride-induced steel corrosion, significantly extending the service life of the construction works and reducing the need for refurbishment in the long term.

StoFloor Traffic Elastic 590 EP also impresses thanks to its excellent bond on concrete substrates with increased levels of moisture and its very good wear resistance. We check the abrasion resistance and related durability at regular intervals on selected reference projects with extremely high traffic. So you are guaranteed maximum safety for your future construction projects.

System properties

- Dynamic crack bridging 0.1 – 0.3 mm (class B 3.1 in accordance with EN 1062-7:2004-08) at + 12 °C
- Static crack bridging 0.51 mm (class A3 in accordance with EN 1062-7) at – 10 °C
- Good bond performance on concrete substrates with higher levels of moisture
- Suitable in the case of rising damp
- Very good wear resistance
- Can also be used without sealing coat, e. g. for broadcasting with Durop or granite gravel
- Alkaline-stable
- Water vapour permeable
- Reaction to fire Bfl-s1
- Impermeable to radon in accordance with IAF testing (Radeberg)
- Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05

System build-up



1 — Primer: StoPox GH 502
2 — Broadcasting: StoQuarz 0.3 – 0.8 mm
3 — Wearing course: StoPox 590 EP
4 — Broadcasting: StoQuarz 0.3 – 0.8 mm
5 — Sealing coat: StoPox DV 100

Solutions for intermediate decks

Reliably and long lasting crack bridging

Due to their construction type, there is a danger of cracks forming in intermediate decks. Changing temperatures and dynamic stress caused by vehicles can also be a reason for the change of crack-widths. Our elastic surface protection systems reliably bridge these cracks, thus preventing water and harmful substances from penetrating the concrete. The stability of the multi-storey car park is preserved for the long term. There is a considerable reduction in downtime and refurbishment work.

Image on right:
Market garage, Waiblingen, GER
StoCretec expertise:
StoFloor Traffic Elastic TEP MultiTop, StoDesign colour concept
The underground car park has been equipped with cathodic protection.
Photo: Isabell Munck

System solutions for intermediate decks

System	StoFloor Traffic Elastic TEP MultiTop	StoFloor Traffic Elastic PM MultiBase	StoFloor Traffic Elastic EZ 500	StoFloor Traffic Elastic SC 300
System description	Epoxy resin multi-storey car park system, hybrid technology, crack bridging, very wear-resistant	Polyurethane multi-storey car park system, with increased crack bridging	Polyurethane multi-storey car park system, standard, increased crack bridging	Polyurethane multi-storey car park system, with increased crack bridging, with spray film suitable for application by machine based on UREA hybrid
Properties	· Crack bridging · Very good wear resistance · Suitable in the case of rising damp · Limited combustibility · Impermeable to radon in accordance with IAF testing (Radeberg) · Tested surface protection system of class OS 11a and OS 11b according to table A.8 of Technical Rule Maintenance of Concrete Structures 2020-05	· Crack bridging · Very good wear resistance · Quick-curing · Suitable in the case of rising damp · Limited combustibility · UV-stable and colour-fast · No broadcasting and no separate sealing coat required · Tested and approved surface protection system of class OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive SIB:2001-10	· Crack bridging · Very good wear resistance · Suitable in the case of rising damp · Limited combustibility · Tested surface protection system of class OS 11a, OS 11b, and OS 14 according to table A.8 or A.9 of Technical Rule Maintenance of Concrete Structures 2020-05	· Crack bridging · Very good wear resistance · Suitable in the case of rising damp · Limited combustibility · Tested and approved surface protection system of class OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive SIB:2001-10
System build-up				
Primer	StoPox GH 530	StoPox GH 500 or StoPox GH 532	StoPox GH 500 or StoPox GH 532	StoPox GH 500
Broadcasting	StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm
Waterproofing layer (main effective surface protection layer)		StoPur PM MultiBase		StoPur SC 300
Wearing course	StoPox TEP MultiTop	StoPur AC MultiCoat	StoPur EZ 500	StoPur AC 500 S
Broadcasting	StoQuarz 0.3–0.8 mm		StoQuarz 0.3–0.8 mm	StoQuarz 0.6–1.2 mm
Sealing coat	StoPox DV 100		StoPox DV 502 or StoPur DV 508	StoPox DV 502

Highlight

StoFloor Traffic Elastic TEP MultiTop

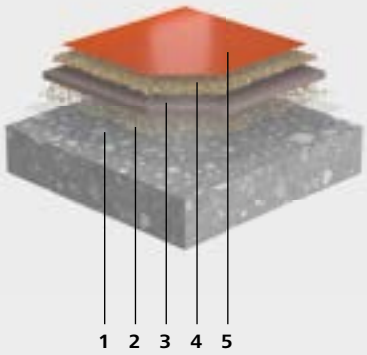
With its special formulation – a combination of epoxy resin and polyurethane resin – StoPox TEP MultiTop unites high wear resistance with increased dynamic crack bridging. The system is therefore incredibly well suited to parking decks where there is a danger of cracks forming or the widths of those cracks changing.

StoPox TEP MultiTop has a decisive advantage over polyurethane-based systems. If the sealing coat is rubbed away after many years of vehicle traffic, the integration of the grain remains intact. Unlike many polyurethane-based systems, this system shows no serious degradation of the EP/PU binding agent as a result of mechanical stress, moisture, and UV light. The working life of the coating build-up can be extended simply be renewing the sealing coat, a process which takes relatively little effort. Numerous reference projects confirm the durability of the tested system. Some installations have been subject to daily stress and load for 20 years, yet their coated surfaces remain functional.

System properties

- Dynamic crack bridging: class B 3.2 in accordance with EN 1062-7 at −20 °C
- Very good wear resistance
- Suitable in the case of rising damp
- Reaction to fire Cfl-s1
- Impermeable to radon in accordance with IAF testing (Radeberg)
- Tested surface protection system of class OS 11a and OS 11b according to table A.8 of Technical Rule Maintenance of Concrete Structures 2020-05
- Overcoating possible if sand integration is still intact

System build-up



1 — Primer: StoPox GH 530
2 — Broadcasting: StoQuarz 0.3–0.8 mm
3 — Wearing course: StoPox TEP MultiTop
4 — Broadcasting: StoQuarz 0.3–0.8 mm
5 — Sealing coat: StoPox DV 100

Solutions for exposed decks

Incredibly hard-wearing and reliably crack bridging

There is also a danger of cracks forming and the widths of those cracks changing in the floor areas of exposed decks. Dynamic stresses caused by vehicles combined with the effects of the weather and harmful substances can quickly damage reinforced concrete.

Surface protection systems with good crack bridging properties and excellent wear resistance preserve the building fabric and ensure the service life can be extended without any need for repair. And this secures the value of the construction works for the long term.

Image on right:
Multi-storey car park University Hospital, Ulm, GER
StoCretec expertise: StoFloor Traffic Elastic PM MultiBase
Photo: Martin Duckek

System solutions for exposed decks

System	StoFloor Traffic Elastic PM MultiBase	StoFloor Traffic Elastic EZ 500	StoFloor Traffic Elastic BA 2000	StoFloor Traffic Elastic SC 300
System description	Polyurethane multi-storey car park system, with increased crack bridging	Polyurethane multi-storey car park system, standard, increased crack bridging	Polyurethane spray-on waterproofing system with its own protection layer, crack bridging	Multi-storey car park system, with increased crack bridging, with spray film based on UREA hybrid suitable for application by machine
Properties	• Crack bridging • Very high wear resistance • Suitable in the case of rising damp • Quick-curing • Limited combustibility • UV-stable and colour-fast • Can be used to bandage cracks • Tested and approved surface protection system of class OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive SIB:2001-10	• Crack bridging • Very good wear resistance • Suitable in the case of rising damp • Limited combustibility • Tested surface protection system of class OS 11a, OS 11b, and OS 14 according to table A.8 or A.9 of Technical Rule Maintenance of Concrete Structures 2020-05	• Crack bridging • Very good wear resistance • Limited combustibility • Tested and approved surface protection system of class OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive SIB:2001-10	• Crack bridging • Very good wear resistance • Suitable in the case of rising damp • Limited combustibility • Tested and approved surface protection system of class OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive SIB:2001-10
System build-up				
Primer	StoPox GH 500 or StoPox GH 532	StoPox GH 500 or StoPox GH 532	StoPox BV 100	StoPox GH 500 or StoPox GH 531
Broadcasting	StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm
Waterproofing layer (main effective surface protection layer)	StoPur PM MultiBase	StoPur EZ 500	StoPur VS 70 + StoPur BA 2000	StoPur SC 300
Wearing course	StoPur AC MultiCoat*	StoPur EZ 502 + StoQuarz	StoPox TEP MultiTop + StoQuarz	StoPur AC MultiCoat*
Broadcasting		StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm	
Sealing coat		StoPox DV 502 or StoPur DV 508	StoPox DV 100	

* Alternatively possible in OS 10.5 and OS 10.21 as a broadcasted covering with StoPur AC 500 S + broadcasting + sealing coat.

Highlight

StoFloor Traffic Elastic PM MultiBase

StoFloor Traffic Elastic PM MultiBase is fast-curing and suitable for foot traffic just a few hours after application. The result is short lockout times and reduced downtime costs.

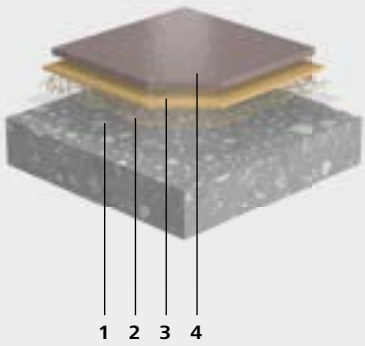
The system is used on floor areas that are exposed to significant strain due to changing temperatures and loads. The StoPur PM MultiBase waterproofing membrane offers increased dynamic crack bridging.

StoFloor Traffic Elastic PM MultiBase does not need an additional sealing coat nor to be broadcasted in excess with quartz sand. An integrated special grain size ensures that the StoPur AC MultiCoat wearing course provides the required key as well as slip resistance. This coat is highly resistant to abrasion and wear. It passed the parking abrasion test (PAT) convincingly, demonstrating a very low level of wear and achieving wear resistance class VK1. The test conducted in accordance with EN 660-1:06-1999 saw a weight loss of 0.0 grammes.

System properties

- Quick-curing
- Short installation times
- Very high wear resistance
- Wear resistance class VK1 (PAT)
- No broadcasting in excess required: 90 per cent saving on sand
- Dynamic crack bridging: class B 4.2 in accordance with EN 1062-7 at −20 °C and class IV_{T+V} in accordance with ZTV-BEL-B 3
- Plasticiser-free
- Odourless
- No carbamate formation
- Reaction to fire: Bfl-s1
- Tested and approved surface protection system of class OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive SIB:2001-10

System build-up



1 — Primer: StoPox GH 500 or StoPox GH 532
2 — Broadcasting: StoQuarz 0.3–0.8 mm
3 — Waterproofing layer: StoPur PM MultiBase
4 — Wearing course: StoPur AC MultiCoat

Solutions for entrance areas and ramps

Persistent despite high shear forces

Ramps experience much higher stresses and more significant wear than areas that are not inclined. Vehicles starting and braking lead to considerable shear forces. Therefore, coatings for ramps must meet stricter requirements in terms of wear resistance and mechanical resistance. Skid resistance in wet conditions must be taken into account too.

Image on right:
Ramps are subject to strict requirements in terms of wear resistance and mechanical resistance.
Photo: Christian Müller/Adobe Stock

System solutions for entrance areas and ramps

System	StoFloor Traffic Elastic 590 EP	StoFloor Traffic Elastic PM MultiBase	StoFloor Traffic DV 100	StoFloor Traffic RZ 500
System description	Epoxy resin multi-storey car park system, permeable to water vapour, crack bridging	Polyurethane multi-storey car park system, with increased crack bridging	Epoxy resin multi-storey car park system, slip-resistant	Polymethylmethacrylat multi-storey car park system, fast-curing
Properties	· High slip resistance · Crack bridging · Very good wear resistance · Large layer thickness · Limited combustibility · Impermeable to radon in accordance with IAF testing (Radeberg) · No primer required · Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	· Crack bridging · Very good wear resistance · Quick-curing · Suitable in the case of rising damp · Limited combustibility · UV-stable and colour-fast · No broadcasting and no separate sealing coat required · Tested and approved surface protection system of class OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive SIB:2001-10	· High slip resistance · Good wear resistance · Suitable in the case of rising damp · Limited combustibility · Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	· High slip resistance · Very good wear resistance · Fast-curing · Workable at temperatures of 0 °C and above · Limited combustibility · Certificate of compliance in accordance with DIN V 18026, surface protection system OS 8
System build-up				
Primer	StoPox GH 502 (optional)	StoPox GH 500 or StoPox GH 532	StoPox GH 502	StoPma GH 500
Broadcasting	StoQuarz 0.3–0.8 mm (optional)	StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm	StoQuarz 0.6–1.2 mm
Wearing course	StoPox 590 EP	StoPur AC MultiCoat	StoPox GH 502 + StoQuarz	StoPma RZ 500 + StoQuarz
Broadcasting	Granite gravel 0.5–1.0 mm		StoQuarz 0.6–1.2 mm	StoQuarz 0.3–0.8 mm
Sealing coat	StoPox DV 100		StoPox DV 100	StoPma DV 500

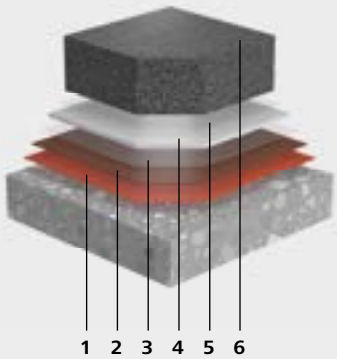
Waterproofing layer below mastic asphalt

The StoWaterproof Traffic Liquid BA 2000 system is suitable for use as a waterproofing layer below mastic asphalt in accordance with DIN 18532-6. As an alternative to classic waterproofing made from bituminous sheeting, it permanently protects concrete structures where there is a danger of cracks forming and prevents water and harmful substances from penetrating them. The system can be applied quickly and efficiently by spraying.

StoPur BA 2000 is a two-component spray film which forms a seamless membrane. Its excellent crack bridging ability guarantees complete impermeability even when crack movements occur under dynamic loads. The StoPur VBS 2000 tack coat provides an optimum shear bond with the mastic asphalt.

StoWaterproof Traffic Liquid BA 2000 has been tested in accordance with ZTV-ING Part 7, section 3 (ZTV-BEL-B Part 3). The German Federal Highway Research Institute (BASt) has also included the system in its quality assessment list for liquid-applied bridge deck waterproofing for deck coverings on concrete bridges. What's more, StoPur BA 2000 is an element of StoFloor Traffic Elastic BA 2000 (StoCretec OS 10 system). We undergo voluntary external monitoring to provide you with consistently high product quality and, consequently, maximum safety.

System build-up



1 — Primer: StoPox BV 100
2 — Levelling coat optional: StoPox BV 100 + Sto-Aggregate KS
3 — Adhesion promoter: StoPur VS 70
4 — Waterproofing layer: StoPur BA 2000
5 — Tack coat: StoPur VBS 2000
6 — Mastic asphalt

Solutions for pedestrian areas

Cost-effective protection systems with scope for design

Pedestrian areas are exposed to lower mechanical and thermal stresses than driving and parking areas. However, moisture and harmful substances are still brought in to these areas, accelerating the rate at which the concrete becomes damaged. Pedestrian areas should also be marked out in different colours to guide users around. We have a number of cost-effective and high-quality solutions available in our range to meet these needs, which offer many different design possibilities. These solutions can also be used as coatings in staircases and utility rooms.

Image on right:
Deutzer Höfe underground car park, Cologne, GER
StoCretec expertise:
StoFloor Traffic WL 100
Photo: Guido Erbring

System solutions for pedestrian areas, staircases, and utility rooms

System	StoFloor Traffic BB OS	StoFloor Traffic DV 100	StoFloor Traffic WL 100
System description	Epoxy resin multi-storey car park system, standard	Epoxy resin multi-storey car park system, slip-resistant	Epoxy resin multi-storey car park system, water-based, permeable to water vapour
Properties	· Very good wear resistance · Suitable in the case of rising damp · Low-emission* · Limited combustibility · Tintable as per RAL colour fan K 5, StoColor System, NCS, and others · Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	· Very good wear resistance · Suitable in the case of rising damp · Limited combustibility · Tintable as per RAL colour fan K 5, StoColor System, NCS, and others · Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	· Very good water-vapour transmission rate · Suitable in the case of rising damp · Low-emission* · Free from benzyl alcohol · Limited combustibility · Tintable as per RAL colour fan K 5, StoColor System, NCS, and others
System build-up			
Primer		StoPox GH 502	StoPox WL 100 or StoPox WL 200
Protective surface coating	StoPox GH 502 + StoQuarz or StoPox GH 532 + StoQuarz	StoPox GH 502 + StoQuarz	
Broadcasting	StoQuarz 0.3–0.8 mm	StoQuarz 0.3–0.8 mm	
Sealing coat	StoPox BB OS	StoPox DV 100	StoPox WL 100 (gloss) or StoPox WL 200 (matt)

* according to the criteria of the Committee for Health-related Evaluation of Building Products (AgBB)

Protection against radon

Radon is a radioactive gas that occurs naturally near to the Earth's surface. It can penetrate buildings through cracks, cable and pipe pits, or permeable floor slabs and is classed as carcinogenic (WHO). Because it has no colour, odour, or taste, it is difficult to detect whether a building has a high level of radon inside it.

Anyone exposed to ambient air with a high concentration of radon for a long period of time will have an increased risk of suffering from lung cancer. To mitigate this danger, the German Federal Office for Radiation Protection therefore requires structural measures be put in place to protect residential buildings and workplaces, among other structures, in areas where there is an elevated concentration of radon.

IAF-Radioökologie Radeberg has conducted a thorough examination of our surface protection systems StoFloor Traffic Elastic TEP MultiTop and StoFloor Traffic Elastic 590 EP. The test institute has confirmed that these systems are completely impermeable to radon.

StoPox EZ 535 bandage for cracks

Crack bridging, long-lasting, and practically invisible

Parking decks rank among the concrete structures that are exposed to especially high levels of chlorides. That is why the applicable regulations require additional measures to be put in place to prevent these harmful substances from penetrating the concrete – and that is on top of more stringent requirements for the concrete cover and concrete properties. Rigid surface protection systems have established themselves as a hard-wearing and cost-effective construction solution in this context. However, these coating build-ups are not crack bridging, meaning cracks in the concrete need to be repaired using injection products or elastic crack bandages.

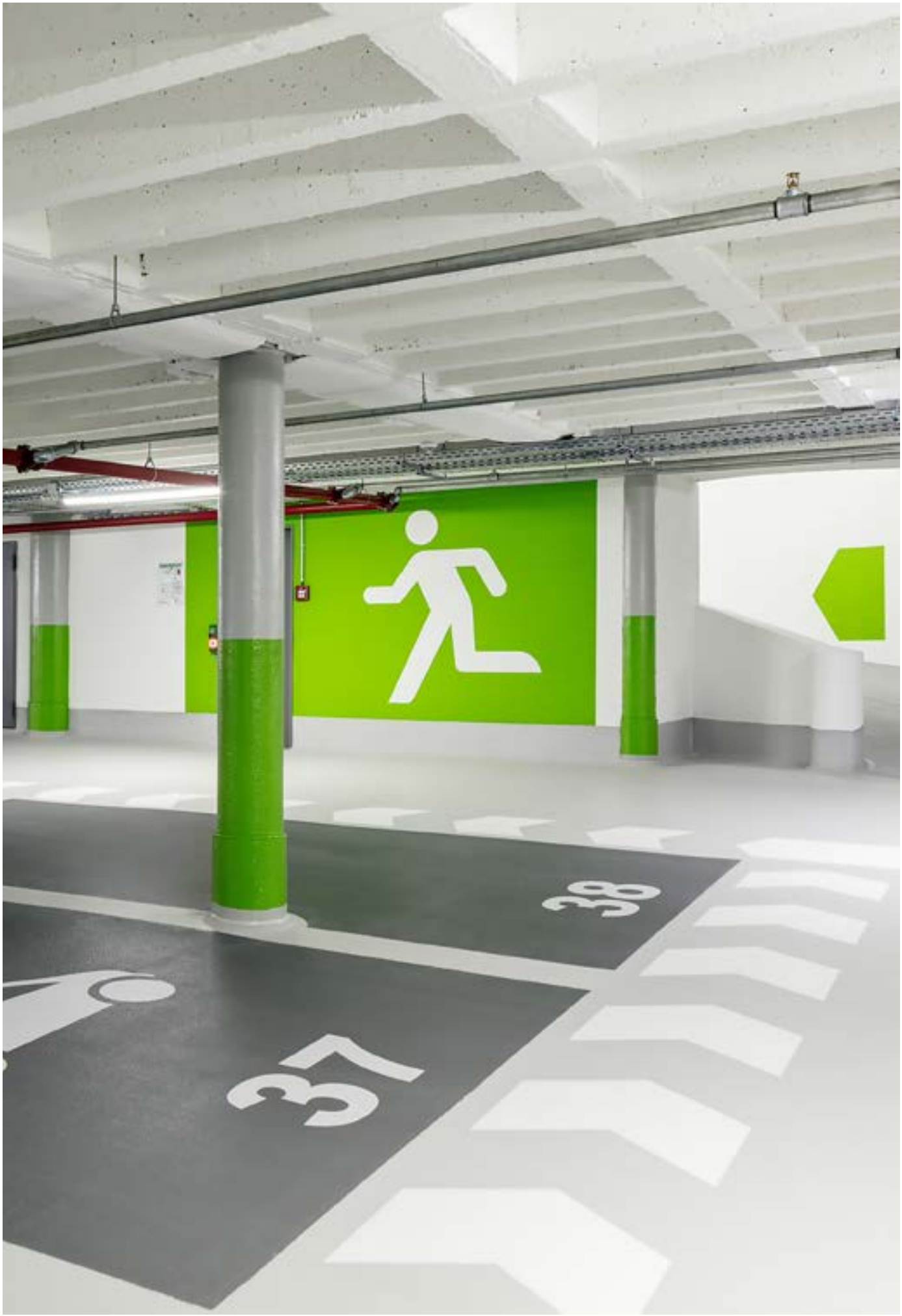
StoPox EZ 535 provides a solution of treating cracks in surface protection systems suitable for vehicle traffic that is almost invisible and incredibly long-lasting. In crack bridging ability tests in accordance with EN 1062-7, the bandage achieved the highest crack bridging class B 4.2 at –10 °C. In the driving abrasion test (DAT), no wear nor damage could be identified after the bandage had been driven over 20,000 times. StoPox EZ 535 has been certified to usage class W3 (25 years). The waterproofing layer is watertight under dynamic stress and guarantees a permanent bond with the substrate – even when subjected to thermal cycling under the influence of de-icing salt.

System properties

- High crack bridging ability: class B 4.2 in accordance with EN 1062-7 at –10 °C
- High fatigue resistance: 1000 cycles TR 008 (–10 °C)
- Usage class W3 (25 years)
- No wear and no damage in driving abrasion test (DAT)
- High level of resistance to mechanical stress
- High bond strength following thermal cycling under the influence of de-icing salt
- Watertight under dynamic stress
- Visually matched to the surface protection system without transition

Image on right:
Marquardtbau underground car park, Stuttgart, GER
StoCretec expertise:
StoFloor Traffic Elastic 590 EP, StoFloor Traffic Elastic TEP MultiTop
Photo: Jürgen Pollak, Stuttgart

Sparkasse underground car park, Aachen, GER
StoCretec expertise:
StoFloor Traffic Elastic 590 EP, StoFloor Traffic WL 100, StoPox EZ 535, StoConcrete Protect V
Photo: Guido Erbring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StoCretec surface protection systems

StoCretec surface protection systems

Surface protection system		StoCretec system	Main products*			
			Primer	**Waterproofing layer (main effective surface protection layer)**	**Wearing course**	**Sealing coat**
OS 8	OS 8.5	StoFloor Traffic WL 100	StoPox WG 100			StoPox WL 100
	OS 8.6	StoFloor Traffic BB OS	StoPox GH 502			StoPox BB OS
	OS 8.8	StoFloor Traffic DV 100	StoPox GH 502			StoPox DV 100
	OS 8.15	StoFloor Traffic Elastic 590 EP	StoPox GH 502		StoPox 590 EP	StoPox DV 100
	OS 8.16	StoFloor Traffic RZ 500	StoPma GH 500		StoPma RZ 500	StoPma DV 500
	OS 8.17	StoFloor Traffic DV 502	StoPox GH 500			StoPox DV 502
	OS 8.20	StoFloor Traffic BB OS	StoPox GH 532			StoPox BB OS
	OS 8.22	StoFloor Traffic DV 100	StoPox GH 532			StoPox DV 100
OS 10**	OS 10.2	StoFloor Traffic Elastic BA 2000	StoPox BV 100	StoPur VS 70 + StoPur BA 2000	StoPox TEP MultiTop	StoPox DV 100
	OS 10.4	StoFloor Traffic Elastic PM MultiBase	StoPox GH 500 or StoPox GH 532	StoPur PM MultiBase	StoPur AC MultiCoat	
	OS 10.5	StoFloor Traffic Elastic PM MultiBase	StoPox GH 500 or StoPox GH 532	StoPur PM MultiBase	StoPur AC 500 S	StoPox DV 502
	OS 10.21	StoFloor Traffic Elastic SC 300	StoPox GH 500	StoPur SC 300	StoPur AC 500 S	StoPox DV 502
	OS 10.22	StoFloor Traffic Elastic SC 300	StoPox GH 531	StoPur SC 300	StoPur AC MultiCoat	
OS 11a	OS 11a.5	StoFloor Traffic Elastic TEP MultiTop	StoPox GH 530	StoPox TEP MultiTop	StoPox TEP MultiTop	StoPox DV 100
	OS 11a.20	StoFloor Traffic Elastic EZ 500	StoPox GH 532	StoPur EZ 500	StoPur EZ 502	StoPox DV 502 or StoPur DV 508
OS 11b	OS 11b.5	StoFloor Traffic Elastic TEP MultiTop	StoPox GH 530	StoPox TEP MultiTop		StoPox DV 100
	OS 11b.20	StoFloor Traffic Elastic EZ 500	StoPox GH 500 or StoPox GH 532	StoPur EZ 500		StoPox DV 502 or StoPur DV 508
OS 14	OS 14.1	StoFloor Traffic Elastic EZ 500	StoPox GH 532	StoPur EZ 500	StoPur EZ 502	StoPox DV 502 or StoPur DV 508

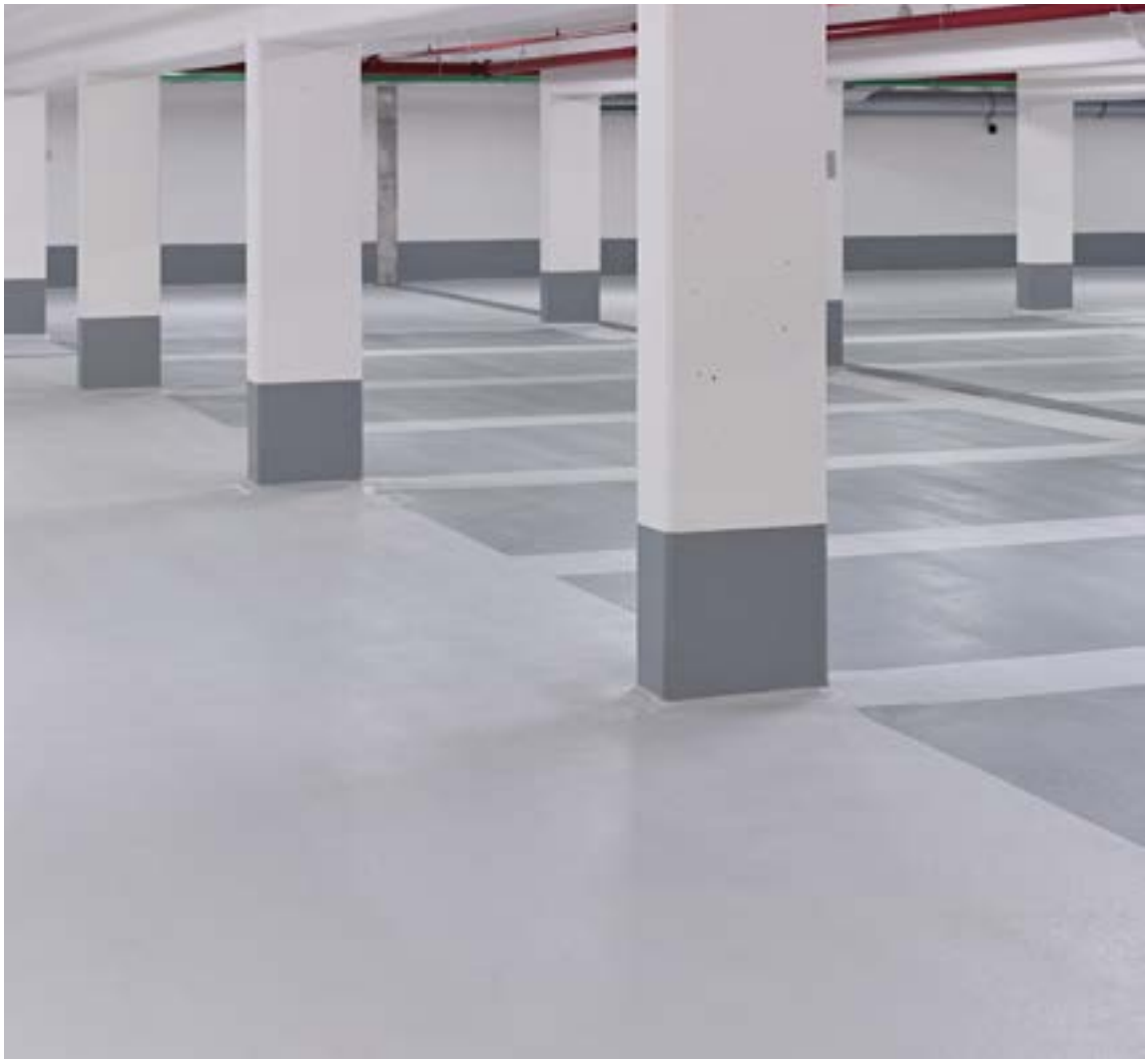
* You will find all available system elements at www.stocretec.de. For specific technical specifications and information on the products, the coating build-ups, and how to apply them correctly, please refer to the Technical Data Sheets.
** Superficial cracks cannot be ruled out in OS 10 systems.

Approval	Crack bridging class
Complies with EN 1504-2 taking DIN V 18026 into account	–
Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	–
Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	–
Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	• Static crack bridging at −10 °C: 0.51 mm (class A3 in accordance with EN 1062-7) • Dynamic crack bridging at +12 °C: 0.1 – 0.3 mm (class B 3.1 in accordance with EN 1062-7:2004-08)
Complies with EN 1504-2 taking DIN V 18026 into account	–
Complies with EN 1504-2 taking DIN V 18026 into account	–
Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	–
Tested surface protection system of class OS 8 according to table A.7 of Technical Rule Maintenance of Concrete Structures 2020-05	–
• General building inspection test certificate in accordance with MVV TB, Part C, running number 3.12 • OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive on the protection and repair of concrete members, edition 2001-10	Dynamic crack bridging at −20 °C: 0.45 mm (class IV_{T+V} in accordance with ZTV-BEL B 3)
• General building inspection test certificate in accordance with MVV TB, Part C, running number 3.12 • OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive on the protection and repair of concrete members, edition 2001-10	• Dynamic crack bridging at −20 °C: 0.45 mm (class IV_{T+V} in accordance with ZTV-BEL B 3) • Dynamic crack bridging at −20 °C: 0.55 mm (class B 4.2 in accordance with EN 1062-7)
• General building inspection test certificate in accordance with MVV TB, Part C, running number 3.12 • OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive on the protection and repair of concrete members, edition 2001-10	• Dynamic crack bridging at −20 °C: 0.45 mm (class IV_{T+V} in accordance with ZTV-BEL B 3) • Dynamic crack bridging at −20 °C: 0.55 mm (class B 4.2 in accordance with EN 1062-7)
• General building inspection test certificate in accordance with MVV TB, Part C, running number 3.12 • OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive on the protection and repair of concrete members, edition 2001-10	Dynamic crack bridging at −20 °C: 0.45 mm (class IV_{T+V} in accordance with ZTV-BEL B 3)
• General building inspection test certificate in accordance with MVV TB, Part C, running number 3.12 • OS 10 in accordance with DAfStb (German Committee for Reinforced Concrete) directive on the protection and repair of concrete members, edition 2001-10	Dynamic crack bridging at −20 °C: 0.45 mm (class IV_{T+V} in accordance with ZTV-BEL B 3)
Tested surface protection system of class OS 11a according to table A.8 of Technical Rule Maintenance of Concrete Structures 2020-05	Dynamic crack bridging at −20 °C: class B 3.2 in accordance with EN 1062-7
Tested surface protection system of class OS 11a according to table A.8 of Technical Rule Maintenance of Concrete Structures 2020-05	Dynamic crack bridging at −20 °C: class B 3.2 in accordance with EN 1062-7
Tested surface protection system of class OS 11b according to table A.8 of Technical Rule Maintenance of Concrete Structures 2020-05	Dynamic crack bridging at −20 °C: class B 3.2 in accordance with EN 1062-7
Tested surface protection system of class OS 11b according to table A.8 of Technical Rule Maintenance of Concrete Structures 2020-05	Dynamic crack bridging at −20 °C: class B 3.2 in accordance with EN 1062-7
Tested surface protection system of class OS 14 according to table A.9 of Technical Rule Maintenance of Concrete Structures 2020-05	Dynamic crack bridging at − 20 °C: 0.55 mm (class B 4.2 in accordance with EN 1062-7)

Concrete repair and concrete protection

Reliable and high-performance solutions

Effects of the weather, harmful substances, and mechanical stress can cause enormous damage to buildings made from reinforced concrete. In order to restore and preserve the function and appearance of the construction works over the long term, high-performance solutions are required. They are characterised by their high cost-effectiveness combined with maximum reliability, and they satisfy the technical requirements of the applicable regulations. Our products and systems for the concrete repair of parking structures feature a CE marking in accordance with EN 1504.



Platz d'Agen underground car park, Dinslaken, GER
StoCretec expertise:
StoConcrete Repair Prime TS 100, StoConcrete Protect V, StoFloor Traffic DV 100
Photo: Guido Erbring

Increasing load capacity with CFRP plates

Delivering sustainability, safety, and aesthetic appeal

Strengthening structures with CFRP plates (CFRP = carbon fibre-reinforced plastic) is a tried-and-tested alternative to other methods such as an additional in-situ concrete layer, sprayed concrete with supplementary reinforcement, or steel beams.

Our strengthening systems increase the tensile strength of load-bearing structures without considerably affecting the dimensions and weight of these elements.

The reinforcing elements are inconspicuous and can be almost fully concealed. In most cases, supply and disposal lines can remain in place during the installation process. Product suitability and quality have been verified by national technical approvals in accordance with DAfStb (German Committee for Reinforced Concrete) directive "Strengthening of concrete structures with bonded reinforcement: 2012-03" and regular external quality control.

StoConcrete Carbon Plate system

System description	CFRP reinforcement system, bonded
Application	• Structural strengthening of concrete structures with bonded reinforcement • Can be inserted in a slot or bonded on the surface
System advantages	• High tensile strength with low dead weight • Resistant to corrosion • Resistant to chemical and atmospheric stresses • Visually integrated into the construction • Negligible logistical effort (delivered as a roll) • Flexible adaptation thanks to cutting to size on site • Minimal downtimes thanks to fast and space-saving application • Suitable for application during operation • No need to remove installations • High cost-effectiveness for the overall system
System elements	
Bonding agent	StoPox KSH thix
Repair mortar	StoPox Mörtel standfest
Cleaning agent	StoCryl VV
Adhesive	StoPox SK 41
Reinforcing element	Sto S&P CFRP Plate

Multi-storey car park West, Überlingen, GER
StoCretec expertise: StoConcrete Carbon Plate, StoConcrete Screed Classic TG
Photo: StoCretec GmbH

Concrete repair products of the EN 1504-3 class R4

System solutions for structural repair

We offer a holistic solution concept for the structural repair of concrete structures. This concept includes repair systems that are tailored to the particular project, building element, position of the application surface, and local conditions.

The systems increase the fire resistance and restore the passivity of the reinforcing steel. Continuous quality control – comprising in-house and external monitoring – ensures that product quality remains consistently high.

Image on right:
Gumbala underground car park, Gummersbach, GER
StoCretec expertise:
StoConcrete Screed Classic TG, StoFloor Industry EH 200, StoFloor Traffic WL 100
Photo: StoCretec GmbH

Concrete repair systems with a static effect

System	StoConcrete Repair Prime TS 100	StoConcrete Repair Prime TG 203	StoConcrete Screed Classic TG
System description	CEM repair system, polymer-modified, dry-mix process, for structural repair	CEM repair system, polymer-modified, manual or wet-mix process, for structural repair	CEM repair system, polymer-modified, manual or wet-mix process, two-component, for structural repair
Application	· Reinforcement of concrete structures · To increase the concrete cover even under CFRP plates · To increase fire resistance · Suitable for the repair principle of cathodic protection · To restore passivity of reinforcing steel	· Local, full-surface, and for edge reprofiling · To increase the concrete cover even under CFRP plates · To increase fire resistance · Suitable for the repair principle of cathodic protection · To restore passivity of reinforcing steel · Suitable for certain facilities for the storage, filling and handling of water endangering liquids	· Concrete repair product for horizontal and inclined surfaces · Local, full-surface · To increase the concrete cover even under CFRP plates · Suitable for the repair principle of cathodic protection · To restore passivity of reinforcing steel
Properties	· Large layer thickness in one application cycle · Application also possible under dynamic stress · Flexible work interruption and long conveying distances · High fire resistance · Permanent electrical conductivity (cathodic protection)	· Fresh mortar has very good modelling properties · Good overhead application · Application also possible under dynamic stress · High compressive strength · High fire resistance · Fairing coat available in the system · Protection against corrosion available in the system · Permanent electrical conductivity (cathodic protection) · Low final creep value	· Permanent electrical conductivity (cathodic protection) · Two-component
Application	Dry-mix process	Manual, wet-mix process	Manual
System build-up			
Bonding agent		StoCrete TH 200	StoCrete TH 110
Concrete repair product	StoCrete TS 100	StoCrete TG 203	StoCrete TG 114 or StoCrete TG 118
Fairing coat	StoCrete TF 200 or StoCrete TF 204	StoCrete TF 200 or StoCrete TF 204	

Highlight

StoConcrete Repair Prime TS 100

This system is used to repair concrete structures and to restore their load-bearing capacity. The polymer-modified dry-mix sprayed mortar StoCrete TS 100 is suitable for increasing concrete cover over large areas and for local reprofiling. It can even be applied and cured under dynamic load without any problems.

The polymers used for StoCrete TS 100 are highly resistant to frost/de-icing salt, chloride penetration, and carbonation. The application of StoCrete TS 100 using the dry spray process ensures a high degree of flexibility. The optimised mortar formulation enables it to be transported over long distances and significant differences in height from the material transfer to the application position. The mortar is available in silos.

System properties

- Complies with class R4 in accordance with EN 1504-3
- Application also possible under dynamic stress
- Application using dry-mix process
- High fire resistance: fire tests according to the standard temperature-time curve, hydrocarbon curve, and the regulations for the equipment and operation of road tunnels (EBA)
- Building material class: A1
- Permanent electrical conductivity (cathodic protection)
- Low final creep value
- High resistance to carbonation
- Low capillary absorption
- Good resistance to thermal shock

System build-up

1 — Protection against corrosion: StoCrete TK (optional)
2 — Repair mortar: StoCrete TS 100

Preserving the building fabric through cathodic protection

A cost-effective alternative to repair

Cathodic protection can be a cost-effective alternative to conventional repair work. It stops pitting and macro-element corrosion of the reinforcing steel from worsening, thus extending the service life of construction works. The cathodic protection principle is based on suppressing the partial anodic reaction, i.e. iron dissolution. A direct current is applied in the opposite direction to the corrosion current. An anode must also be permanently connected to the concrete. The corrosion rate of the reinforcing steel drops to practically zero. The reinforcement maintains its initial condition.

The anode is embedded in a repair mortar, which is special because, if equilibrium humidity is reached within the mortar, there is still sufficient moisture available for the ions to migrate as required. This is due to the even distribution of pore radii throughout the mortar. At the same time, these mortars meet the relevant requirements in terms of durability and the bond on the existing concrete.

Advantages of cathodic protection

- Prevents steel corrosion
- Protects the building fabric for the long term
- High level of cost-effectiveness
- Relatively short construction period
- Refurbishment possible during operation
- Only minor interventions required in the existing construction
- Reduces the negative impacts of noise, vibrations, or water jets
- Monitoring of the building fabric

Image on right:
Market garage, Waiblingen, GER
StoCretec expertise:
StoFloor Traffic Elastic TEP MultiTop, StoDesign colour concept
The underground car park has been equipped with cathodic protection.
Photo: Isabell Munck

Systems for repair and anode embedding

System	StoConcrete Screed Classic TG	StoConcrete Repair Prime TG 203	StoConcrete Repair Prime TS 100
System description	CEM repair system, polymer-modified, manual, two-component, for structural repair	CEM repair system, polymer-modified, manual or wet-mix process, for structural repair	CEM repair system, polymer-modified, dry-mix process, for structural repair
Position of the application surface	Horizontal, slightly inclined	Any	Vertical, overhead
Application	Manual	Manual, wet-mix process	Dry-mix process
R class in accordance with EN 1504-3	R4	R4	R4
Building material class in accordance with EN 13501-1	$A2_{fl}$-s1	A2-s1,d0	A1
Fire resistance (standard temperature-time curve) in accordance with DIN 4102-2 and EN 1365-2		F90, REI 90	F90
System build-up			
Bonding agent	StoCrete TH 110	StoCrete TH 200	
Concrete repair product	StoCrete TG 114 or StoCrete TG 118	StoCrete TG 203	StoCrete TS 100

Highlight

StoConcrete Repair Prime TG 203

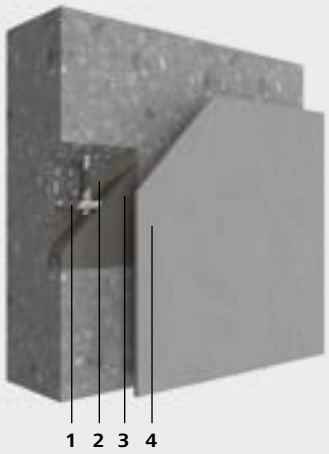
The StoConcrete Repair Prime TG 203 repair system can be used to reliably repair the load-bearing capacity and fire resistance of underground car parks. The StoCrete TG 203 mortar for structural repair complies with class R4 in accordance with EN 1504, Part 3 and has been categorised as building material class A2-s1,d0 in accordance with EN 13501-1. Fire resistance lasting 90 minutes has also been verified.

Where the repair principle of cathodic protection is concerned, the StoCrete TG 203 concrete repair product has proof of suitability as an anode embedding mortar. In addition, a general building inspection test certificate verifies its suitability for certain facilities for the storage, filling and handling of water endangering liquids. StoCrete TG 203 is suitable for application both vertically and overhead, either partially or over an entire surface. It has already proven its great performance and durability on countless construction works.

System properties

- Complies with class R4 in accordance with EN 1504-3
- Application also possible under dynamic stress
- Manual application and wet-mix process
- High fire resistance
- High compressive strength
- Permanent electrical conductivity (cathodic protection)
- Low capillary absorption
- Good resistance to thermal shock

System build-up



1 — Protection against corrosion: StoCrete TK (optional)
2 — Bonding agent: StoCrete TH 200
3 — Repair mortar: StoCrete TG 203
4 — Fairing coat: StoCrete TF 200 or StoCrete TF 204

StoCrete FB: Surface protection and waterproofing layer

Protecting bases underneath paved surfaces

Parking decks with paved surfaces have no reinforced concrete structures with direct car traffic. However strip and single foundations as well as the plinths of supports and walls can be exposed to significant amounts of water and de-icing salts. Concrete protection systems, which meet the requirements for waterproofing are suitable for protecting these building elements.

The StoConcrete Protect Elastic FB coating system provides a permanent waterproofing layer for covered building elements underneath paved surfaces. It simultaneously protects the building fabric in the spray and splash zone against water containing chlorides, thus preventing damage caused by corrosion of the reinforcing steel. StoCrete FB can also be used as a waterproofing layer for tanks and double stackers.

System properties

- Waterproofing layer made of mineral waterproofing slurry
- High impermeability against pressing water
- Excellent static and dynamic crack bridging ability
- Resistant to weather and ageing
- High resistance to the penetration of chlorides and carbon dioxide
- Good water vapour diffusion permeability
- Proven material technology

Image on left:
StoConcrete Protect Elastic FB provides a waterproofing layer for covered building elements underneath paved surfaces and protects the building fabric in the spray and splash zone.
Photo: StoCretec GmbH

Image on right:
District of Wydenbrück underground car park, Paderborn, GER
StoCretec expertise:
StoFloor Traffic Elastic 590 EP, StoConcrete Protect Elastic FB for double parking spaces, StoConcrete Protect V
Photo: Photomax, Dietmar Flach

Anti-graffiti system

The StoConcrete Protect Prime TU 100 system features in the list of tested anti-graffiti systems (AGS) issued by the German Federal Highway Research Institute (BASt). It can be used as an anti-graffiti protective coating in Multi-storey and underground car parks or for residential and administration buildings, for example. In civil engineering, StoConcrete Protect Prime TU 100 serves as a coating for inner tunnel linings. With maximum resistance to soiling and excellent cleanability, this system is really impressive.

System properties
- Maximum resistance to soiling
- Very good cleanability even without a cleaning agent
- High mechanical resistance
- High resistance to alkalis, hydrocarbons, and petrols

System build-up

1 — Fairing coat: StoCrete TF 204
2 — Coating: StoPox TU 100, optional: StoPur WV 60

Functionality meets design

Colour design for car parks

StoDesign develops colour and material concepts for facades and interiors – from individual buildings to entire cityscape designs. The plans incorporate a thorough analysis of the existing architecture and the use and function of the building alongside a consideration of the surroundings and regional contexts. Various technical and design versions are developed and tested, and colour shades, surfaces, and materials are defined.

StoDesign's colour designs for car parks provide guidance for users and create an inviting atmosphere. Floor areas and space-defining building elements such as pillars, openings, and doors are differentiated from each other using colour. This ensures safety for drivers and pedestrians – the crucial factor when creating a design concept.

Image on left:
Multi-storey car park Nord, Montabaur, GER
Colour concept: StoDesign Interiors, Stühlingen
Rendering: StoDesign Interiors

Image on right:
Multi-storey car park Nord, Montabaur, GER
StoCretec expertise: StoFloor Traffic Elastic 590 EP
Photo: Axel Stephan


AUSGANG

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