



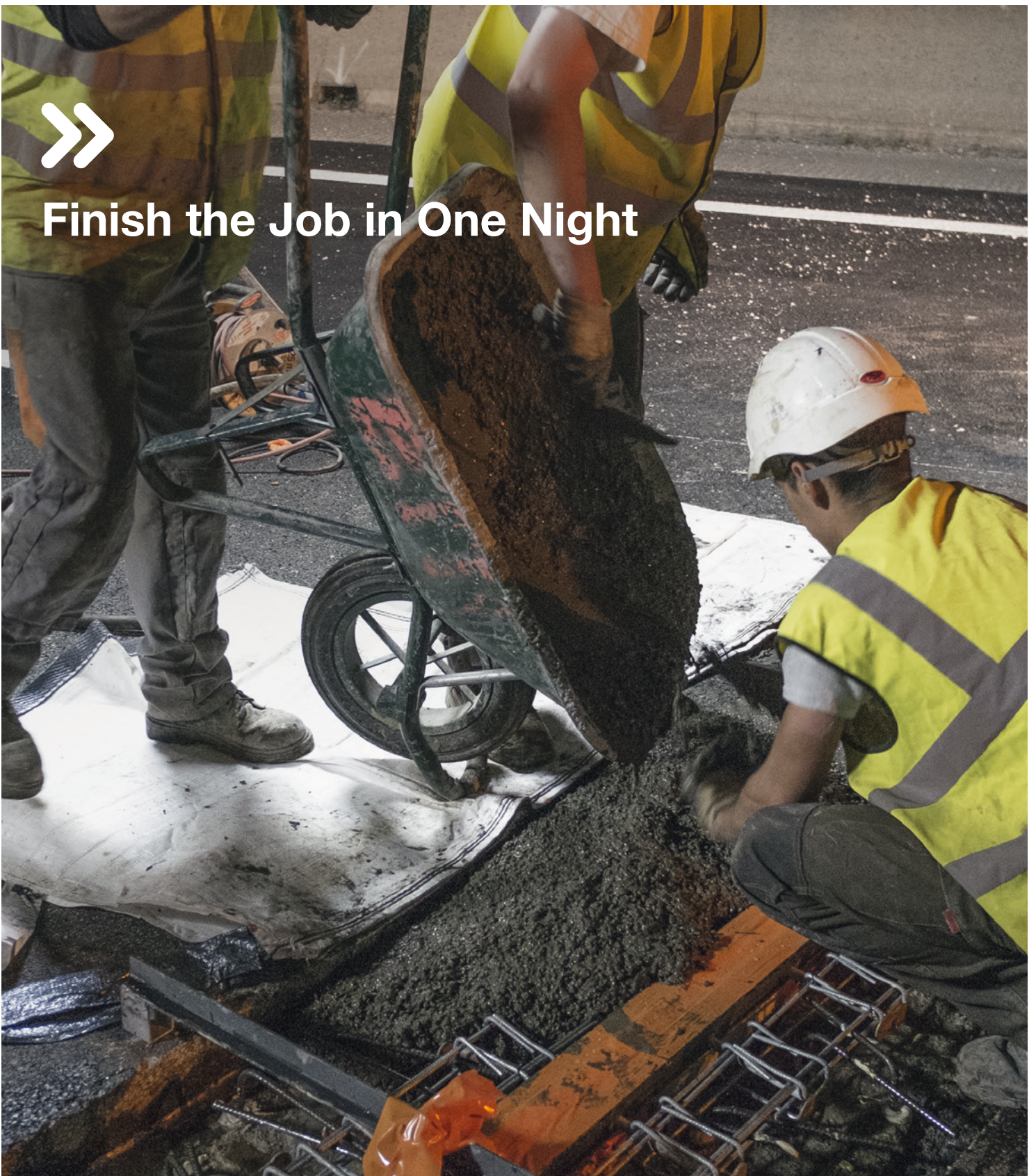
# When Speed Matters

## A Guide to Fast Repair Solutions





## Finish the Job in One Night



“With more than 60,000 vehicles a day, we cannot make any mistakes. Finishing the job in one night and ensuring a long life time for our customer are the reasons why we have chosen the reliable and foolproof solutions from BASF.”

**Guillaume Wastiaux**, Technical Equipment Officer, ETIC



# It's All about Time – Your Guide for Fast Repair Solutions for Concrete Damage

Time pressure and short deadlines are always a problem when roads, bridges, or facilities need to be repaired. MasterEmaco meets these challenges with a complete product portfolio of unique repair mortars that promise durability and reliability when every minute counts.

Time is a major decision driver when choosing a repair solution. Owners and applicators rely on repair mortars that are easy to work with, durable, and – most importantly – fast. Closing down a busy street, a bridge, or a part of a production plant always causes a lot of challenges. MasterEmaco is specially designed for the needs of the construction industry.

The fast repair mortars produced by Master Builders Solutions can be applied in many construction sectors where speed matters, such as:

- Civil engineering
- Road repair
- Industrial parks and parking lots

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## When Speed Matters

Our urban civilization is based on concrete. Houses, streets, or bridges – almost every structure contains it. However, not even concrete is made for eternity. Concrete deterioration is a huge challenge. Every minute a facility is closed, every time a road is not accessible, or a structure is not usable costs huge amounts of money. Applicators, specifiers, and planners need reliable repair solutions that are long lasting and fast in order to quickly get things moving again. »





# MasterEmaco: Solutions for Fast and Reliable Repair

The **MasterEmaco portfolio of repair mortars** makes up a complete system approach for substituting deteriorated concrete and re-establishing the original strength, structural integrity, and aesthetics.

One of the greatest challenges facing the successful performance and durability of a repair mortar is its dimensional compatibility with the existing concrete. A repair mortar acts as replacement concrete in the structure.

It transfers loads and restores the structural functionalities of the structure. To match the properties of the existing concrete, our Master Builders Solutions experts offer a tailor-made repair mortar range.

**The three main benefits make our solution the right choice for you when speed matters**



## Fast return to service

For owners and engineers, the repair of damaged concrete structures in the shortest amount of time is of utmost importance. Fast MasterEmaco mortars can lower maintenance costs and limit disruption of activities significantly while the solution remains robust enough for most jobsite conditions.



## Easy planning management

Our specialized MasterEmaco repair mortars allow applications even at low temperatures. Planning maintenance is simplified since the job can be done during the cold season when there is less traffic or the production rate is lower.



## Superior performance

Formulated to be machine applied, formed, or hand troweled, the MasterEmaco line of superior performance products reestablishes the long-term durability and load-bearing capacity of concrete. These products match the concrete's strength, improve the aesthetics, prolong the life cycle of the structure, and work rapidly to ensure a quick return to service.





## Important Considerations for Managing the Jobsite

Successful refurbishment projects require more than a single solution. We offer a wide range of customized repair mortars and individual support. So you can focus on what really matters at the jobsite – getting the job done as quickly as possible.

### Closure time and conditions on-site

MasterEmaco offers minimal interruption: repairs are completed within one night, even in severe weather conditions – from extreme cold to hot temperatures. There are as many cases as jobsites. Master Builders Solutions offers you the flexibility and possibility to react to different situations. Our systems can be applied from  $-25^{\circ}\text{C}$  up to  $+30^{\circ}\text{C}$ . The fast hardening solutions allow for fast reopening to traffic.

### Life cycle of the building

The overall costs should take into account the costs for refurbishment and lifelong building maintenance. It strongly influences the renovation concept and systems which should be applied. We can provide our expertise with the LCCA (Life Cycle Cost Analysis) tool developed by Master Builders Solutions. The LCCA tool allows a clear cost analysis, helping you choose the right solution.

### Durability

Disruption due to refurbishment may induce very high costs or production disruption. The need to minimize refurbishment frequency should be carefully checked in order to reduce maintenance. MasterEmaco fast solutions provide a high technical level to ensure better durability. Protection systems like the corrosion inhibitor MasterProtect 8000 CI or hydrophobic treatment with MasterProtect H303 may be useful to increase durability as well.

### System compatibility

Very often more than one product is applied at a jobsite – at the same time or in different steps. Compatibility is often ignored but has to be carefully checked. With a wide range of solutions, BASF can deliver full-repair and protection solutions. Our expert team is able to deliver our Master Builders Solutions product range quickly and provide reliable advice.



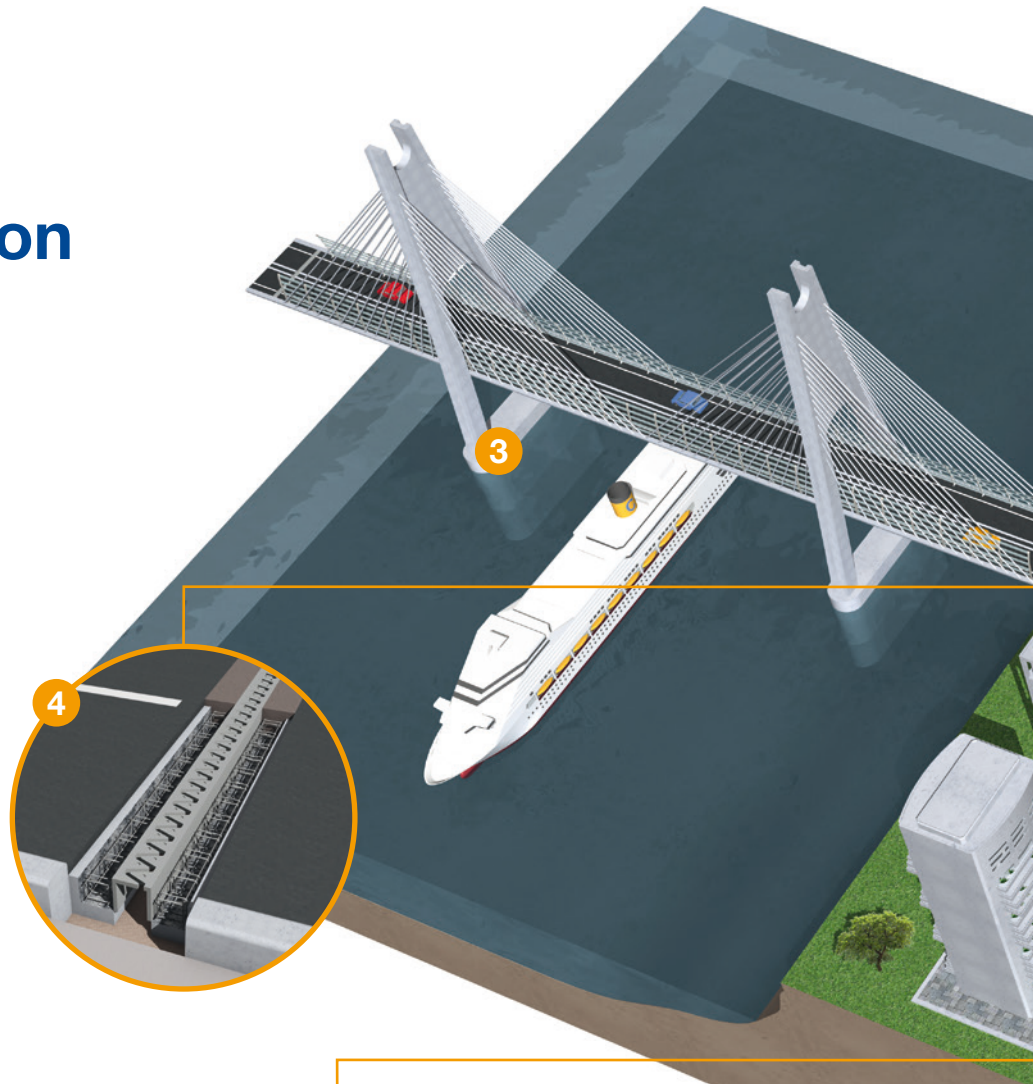
The MasterEmaco solutions are part of our wider services and portfolio. Depending on the jobsite and conditions, we support our customers so their projects succeed.



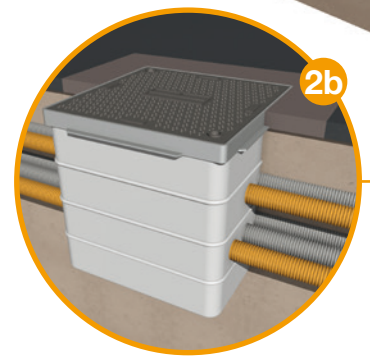
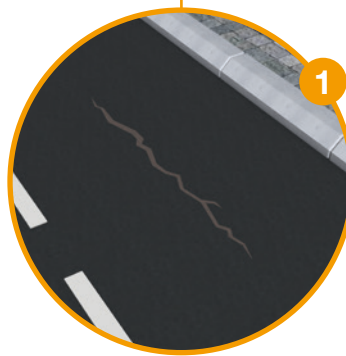
## Fast Application Overview

The illustration shows the different application areas and the diverse use of MasterEmaco products. Whether it is civil engineering, road repair, or industrial parks and parking lots, in this guide you can find the right product for your challenge.

Most of the time, you will be able to intervene in less than one day.



- 1 Horizontal repair (road, slab, floors)
- 2a Manhole repair for water networks
- 2b Manhole repair for telecommunication network
- 3 Overhead, vertical, and horizontal repairs
- 4 Road-nosing refurbishment
- 5 Anchoring



Fast return to service

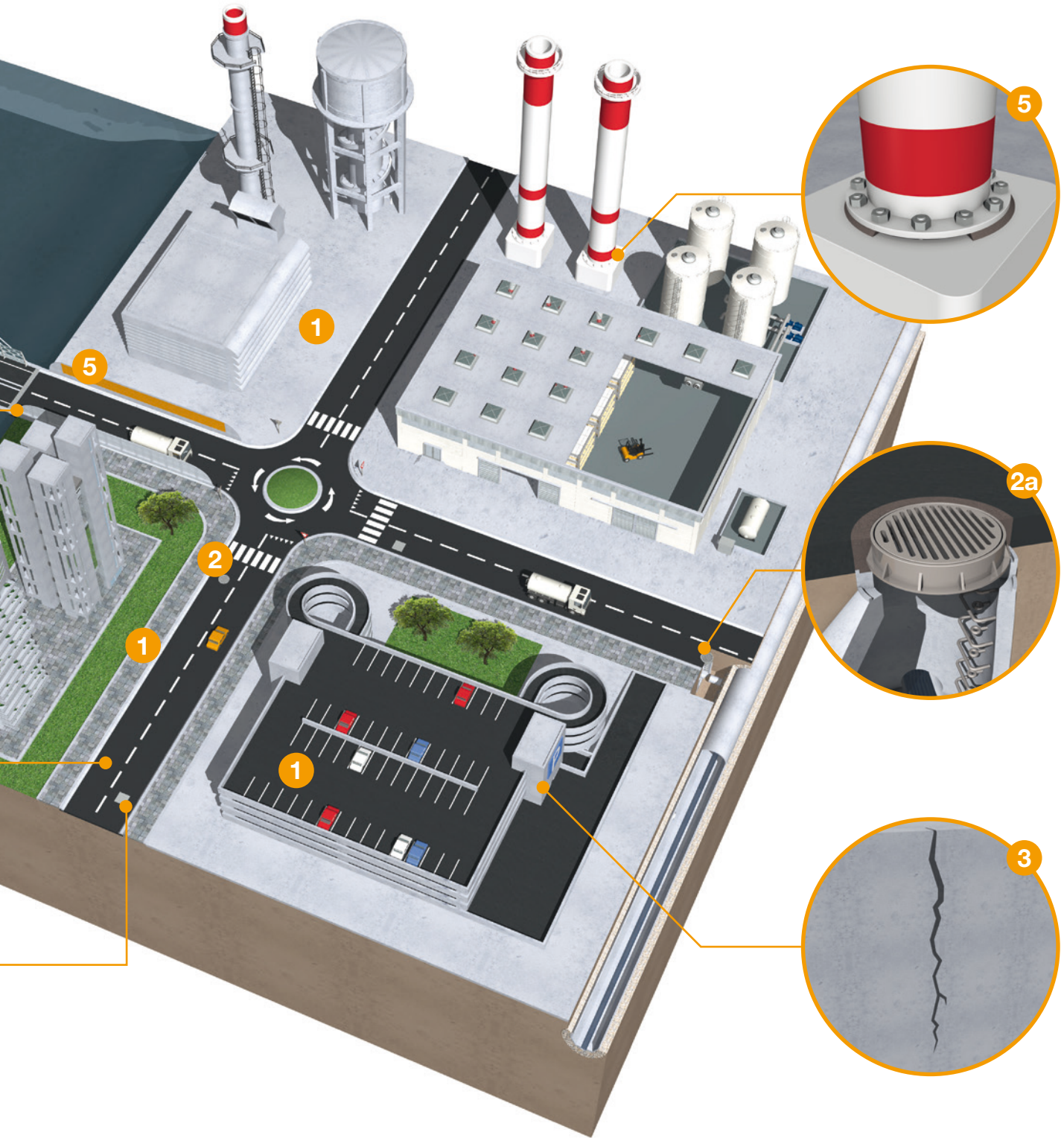


Easy planning management



Superior performance





# 1 day fast application

The superior hardening properties enable a quick return to service and allow the job to be finished within a day.



# Horizontal Road and Concrete Repair

To avoid risky traffic jams, to reopen closed streets earlier, or to repair floors in industry, a fast solution is necessary. With the product line MasterEmaco, it is possible to return to service after just a few hours.

## Background information

- Concrete roads
- Factory floors
- Gas stations
- Parking lots

Interventions in these areas often have a common point: the closure for refurbishment leads to unsafe situations and may generate customer dissatisfaction.

## Challenges and requirements

In case of damage, the key elements for repair must be: fast, safe and reliable. Fast application, which allows fast reopening and reduces risky situations. Closing a road or part of a floor, which is used by vehicles or people, leads to a risky situation. It has to be fixed and reopened as fast as possible. Once repaired, the new structure should behave as expected, without accelerated defects and aging.

## Solution for fast road repair

Different solutions may be used. The right choice depends on several parameters you will find on the next page. In any case, ensuring the selection of the right substrate preparation is the basis for a successful repair.

The main steps for the use of repair mortars are:

- Control of the substrate quality and preparation, as well as ensuring proper conditions of applications
- Application of a scratch coat may be mandatory, depending on the product use
- Application of the mortar itself
- Ensuring sufficient curing before reopening to traffic

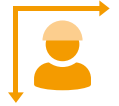


## Selection criteria

	<b>Thickness</b>	The thickness range should be carefully checked. Too thick and some cracks may occur or even delamination. If it is too thin, the repair may not be strong enough.
	<b>Area</b>	The area influences the choice of the mortar. Often large areas are easily and quickly repaired with a fluid product. Patches and slopes are created with a thixotropic mortar.
	<b>Mechanical properties</b>	The mechanical properties of the repair mortar have to be compatible with the requirements. An additional protection especially for chemical resistance may be useful. Load, type of load and frequency must be taken into consideration.
	<b>Temperature of application</b>	The temperature of the application should always be in the defined range. It influences the speed of setting for all mortars. For this reason, in cold environments, special attention should be taken before reopening to ensure sufficient strength.
	<b>Fast return to service</b>	The period between the end of the application and reopening to traffic is a critical period and may cause risky situations. This parameter is strongly influenced by the temperature of the environment, the material, the mixing water temperature, and the amount of water. It also influences the durability of the repair.

Product	Description	Thickness	Recommended area*	Mechanical properties	Temperature of application	Fast return to service	Page
<b>MasterEmaco T 1100 TIX</b>	Thixotropic repair mortar	10–150 mm	< 10 m <sup>2</sup>	High	–5 °C → +30 °C	–5 °C → 4 h. +5 °C → 3 h. +20 °C → 2 h.	24
<b>MasterEmaco T 1200 PG</b>	Fluid repair mortar	10–150 mm	> 10 m <sup>2</sup>	High	–5 °C → +30 °C	–5 °C → 4 h. +5 °C → 3 h. +20 °C → 2 h.	25
<b>MasterEmaco T 1400 FR</b>	Steel-fiber-reinforced fluid repair mortar	10–150 mm	> 10 m <sup>2</sup>	Extreme	–5 °C → +30 °C	–5 °C → 4 h. +5 °C → 3 h. +20 °C → 2 h.	26

\* = in one application



# Overhead, Vertical, and Horizontal Repairs

Refurbishment and repairs on bridges and in tunnels are a risky venture. A fast and reliable solution is important so that quickly reopening for service can be guaranteed. MasterEmaco offers the best properties to master this challenge.

## Background information

Bridge repair, marine structures, and the upper structure of factories are examples where fast concrete repair in vertical or overhead applications is needed. Fast hardening is necessary because of the special environment and inflexible parameters.

## Challenges and requirements

Ensuring application during the night to minimize traffic disruption or to repair a concrete structure between two tides is a challenge. These situations are highly challenging, and failure may lead to a huge loss of time and money. Fast and easy application and reliability are the key points for such a repair.

## Solution for vertical repair

Overhead and vertical applications are challenging. Especially in instances of high thickness, it may lead to a huge time savings at the jobsite. Following the three application phases is crucial for the durability of the repair applications:

- Preparation of the substrate (sound and clean)
- Application of the mortar by trowel; machine application under some circumstances may be suitable in cases where the surface is extensive
- Curing: wind and direct exposure to sun must be avoided



## Selection criteria



### Thickness

The thickness range should be carefully checked. Too thick and some cracks may occur or even delamination. If it is too thin, the repair may not be strong enough. Vertical and overhead applications are the most challenging. Ease of application is a key factor.



### Area

The area influences the choice of the mortar. A patch can be done with a very fast-setting mortar but larger areas require more working time.



### Temperature of application

The temperature of application influences the speed at which all mortars cure. For this reason, in cold environments, special precautions should be taken before reopening to ensure sufficient strength. This point is more relevant for horizontal repair.



### Fast return to service

The period between the end of the application and reopening to traffic is very critical and may cause risky situations. This parameter is strongly influenced by the temperature of the environment, the material, the mixing water temperature, and the amount of water. It also influences the durability of the repair.

Product	Description	Thickness	Temperature of application	Fast return to service	Page
<b>MasterEmaco S 5440 RS</b>	Structural repair mortar	5–50 mm	0°C → +30°C	+5°C → 4 h. +20°C → 2 h.	28



# Manhole Repair Solutions

Although there are many types for different functions, manholes should have the following in common: they are long lasting and at exactly the same level of the road. It is best when you do not notice them.

## Background information

Manholes are often not noticed on roads but are important elements for water management networks and communication networks, which should be properly maintained.

## Challenges and requirements

Defective manholes that are on roads are subject to traffic. Failure may cause an accident, and replacement leads to closing the road and then stopping traffic, at least partially, leading to traffic jams and the risk of road accidents.

## Solution for manhole repair

Depending on the size of the manhole and if there is a slope, two different applications are possible:

- The floating method: consists of the application of a thixotropic bedding mortar and then the placement of the steel frame at the road level
- The suspended method: the manhole is suspended in a frame, which positions the manhole at the right level, and fluid mortar is then poured around the framework



## Selection criteria



### Type and size of the manhole

Size, form, weight, material – all these criteria may vary and influence the choice of the product. All material used for manholes can be fixed with our MasterEmaco T range of products.



### Traffic and location

Different factors influence the mechanical loads on the fixing mortar: road traffic in general, the number of trucks per day, and the specific location of the manhole – for example, on a curve. Also, if a slope is present, a thixotropic product has to be used.



### Temperature of application

This is a typical parameter that cannot be planned. In the event of failure, the repair should be done as soon as possible to avoid any accidents. The temperature influences the speed at which all mortars cure. For this reason, in cold environments, special precautions should be taken before reopening to ensure enough resistance.



### Fast return to service

The period between end of application and reopening to traffic is critical and may cause risky situations. This parameter is strongly influenced by the ambient temperature, the material, the mixing water temperature, and the amount of water. It also influences the durability of the repair.

Product	Description	Type and size of the manhole	Traffic and location	Temperature of application	Fast return to service	Page
<b>MasterEmaco T 1100 TIX</b>	Thixotropic repair mortar	Ideal for small manholes	Low to high	-5 °C → +30 °C	-5 °C → 4 h. +5 °C → 3 h. +20 °C → 2 h.	24
<b>MasterEmaco T 1200 PG</b>	Fluid repair mortar	Ideal for large manholes	Low to high	-5 °C → +30 °C	-5 °C → 4 h. +5 °C → 3 h. +20 °C → 2 h.	25
<b>MasterEmaco T 1400 FR</b>	Steel-fiber-reinforced fluid repair mortar	Ideal for large manholes	High to very heavy traffic	-5 °C → +30 °C	-5 °C → 4 h. +5 °C → 3 h. +20 °C → 2 h.	26



# Road-Nosing Repair

The road nosing could be considered high-tech art. Reliable fixing ensures the durability and the correct functionality of the joint.

## Background information

A road nosing is essential and makes the construction of bridges possible. Failure leads to the total closure of the road. This is why durability and reliability are so important here.

## Challenges and requirements

Very often, the refurbishment of a road nosing means disposal of the old joint. The preparation of the substrate, preparation of the new joint, and fixing of the new joint – often all of this has to be done in one night. The mortar has to achieve enough mechanical resistance within a few hours so the reopening in the morning can be guaranteed before traffic jams occur.

## Solution for road-nosing repair

A road nosing contains many steel rebars. This is why the mortar must be fluid in order to fill all space between them and prevent any voids. Fixing of a road nosing is very crucial and the durability very important. We recommend the use of our MasterEmaco T 1400 FR, which is steel fiber reinforced and fluid. These characteristics ensure the best durability.





## Selection criteria



### Traffic

The traffic on the road, the number of trucks per day, and the location of the joint influence the mechanical loads on the fixing mortar.



### Temperature of application

This is a typical parameter that cannot be planned. In case of failure, the repair should be done as soon as possible to avoid any accidents. The temperature influences the speed at which all mortars cure. For this reason, in cold environments, special precautions should be taken before reopening to ensure sufficient strength.



### Fast return to service

The period between end of application and reopening to traffic is a critical time, and may cause risky situations. This parameter is strongly influenced by the ambient temperature of the environment, the material, the mixing water temperature, and the amount of water. It also influences the durability of the repair.

Product	Description	Traffic	Temperature of application	Fast return to service	Page
<b>MasterEmaco T 1400 FR</b>	Steel-fiber-reinforced fluid repair mortar	Up to very heavy traffic	-5 °C → +30 °C	-5 °C → 24 h. +5 °C → 12 h. +20 °C → 4 h.	26
<b>MasterEmaco T 1200 PG</b>	Fluid repair mortar	For medium traffic	-5 °C → +30 °C	-5 °C → 24 h. +5 °C → 12 h. +20 °C → 6 h.	25



# Anchoring

They are invisible and usually not noticed, but all structures need them and rely on them. Anchoring structures are an important component in the building industry. That's why the anchoring product should be of high quality and durable.

## Background information

At repair jobsites, anchoring is often needed for:

- Fixing precast elements like sound insulation panels on roads
- Installing new barriers on bridges
- Fixing rails or steel elements in industrial applications

Fast anchoring is part of an overall repair solution.

## Challenges and requirements

We do not see them, but anchoring products are maybe the most important products in a building. They “transmit” all the relevant loads. It is very important that they achieve enough strength before loading, and they must be reliable. Ease of application to avoid any mistakes and durability are key points. They are supposed to last for the lifetime of the structure.

## Solution for anchoring

Anchoring is always a matter of compatibility. Structures are made of concrete and often anchors must transfer the load to a concrete structure. Compatibility is crucial here to ensure durability. In the past, cement technology was not efficient enough to be used as thin anchoring. With MasterFlow 960, this type of application is now possible with the following benefits:

- 100 % compatible with the concrete substrate
- Can be applied in humid conditions
- Allows for a small drilling diameter
- Packaging is easily disposable
- No long-term creep
- Economical
- Fire-resistant



## Selection criteria



### Load calculation

Strength and loads should be calculated in order to find the right dimensions of the anchor. Calculations for anchoring are often included in national regulations.



### Temperature of application

Outside, in cold temperatures, and especially if loads have to be applied quickly, mechanical performance has to be checked before loading the anchor.



### Fast return to service

The period between the end of the application and reopening to traffic is a critical time and may cause risky situations. This parameter is strongly influenced by the temperature of the environment, the material, the mixing water temperature, and the amount of water. It also influences the durability of the repair.

Product	Description	Load calculation	Temperature of application	Fast return to service	Page
<b>MasterFlow 960</b>	Cement-based anchoring mortar	According to national regulations	-5°C → +30°C	-5°C → 24 h. +5°C → 24 h. +20°C → 3 h.	32





# Fastest Hardening Even in Cold Temperatures

Severe conditions highlight differences: while most mortars are unsuitable for use in winter, the unique MasterEmaco T range delivers remarkable performance – even when temperatures drop below zero.

## Background information

Of course, an application above +10°C is easier and – if possible – preferable. But there are many circumstances where an application below +10°C and sometimes much colder has to be done. For example:

- Emergency road repair in winter
- Floor repair in cold-storage rooms

## Challenges and requirements

Fast setting at +20°C, is not a big challenge and pretty easy to achieve. Fast and reliable setting at 0°C, –5°C, –15°C or even –25°C is very challenging for products. This is why the choice of the product is, in these difficult environments, highly important.

## Solution for cold-storage rooms

At very low temperatures, cement technology is not relevant anymore. Master Builders Solutions has developed two unique and innovative technologies for fast hardening at low temperatures.

## Mineral technology

MasterEmaco T 545 is based on an alternative mineral binder compared to cementitious repair mortars. The very interesting properties, such as fast hardening at negative temperatures far below zero, and very good mechanical and chemical resistance offer you a smart solution with unique properties at your jobsite.

## Advanced polymer technology

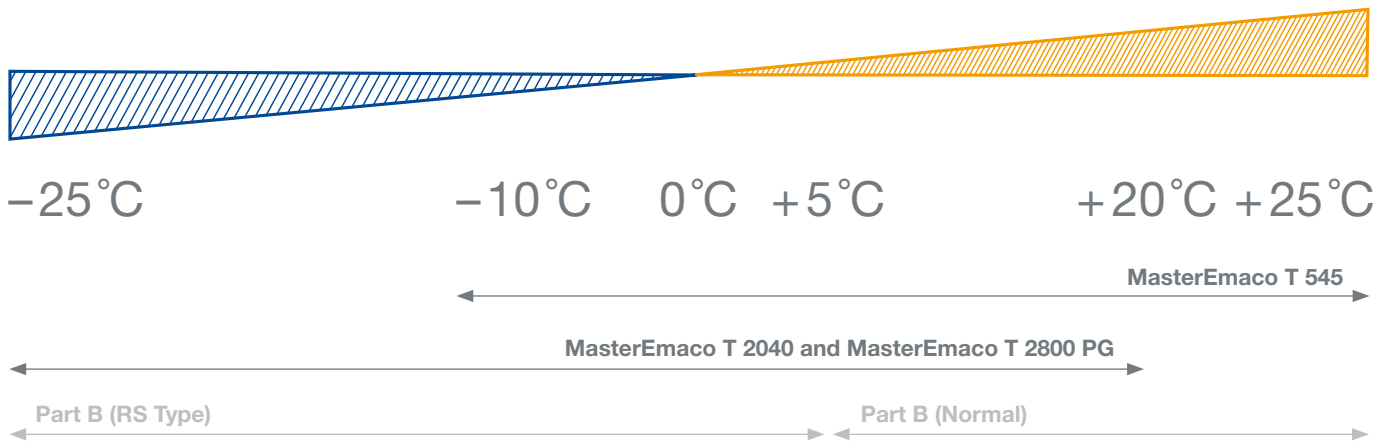
MasterEmaco T 2040 and 2800 PG perform well when other technologies reach their limits. They provide the best of polymer technology without the disadvantages by providing:

- Hardening at very low temperatures (down to –25°C)
- Very fast hardening
- Very good interlayer adhesion
- Good resistance to weathering and UV for outside applications
- Very limited odor during the application, allowing applications in the food sector, for example
- Chemical resistance

MasterEmaco T 2040 and MasterEmaco T 2800 PG are available in two grades – one for applications between –25°C and 0°C, the other one for applications between 0°C up to +25°C – as these unique properties may be of interest for jobsites under normal weather conditions as well.

## Properties and benefits

“Make the impossible possible” could be the slogan of MasterEmaco T 545, T 2040, and T 2800 PG. They allow applications far below 0°C. But not only that, in addition they may be the right choice for specific applications at normal temperatures. For example, covering a steel bridge deck with MasterEmaco T 2800 or repairing a floor with MasterEmaco T 545 in an environment where nonhazardous products are required are two examples of the many possibilities.



Product	Description	Recommended for	Fast return to service	Page
<b>MasterEmaco T 545</b>	Fluid repair mortar	Industrial floor or road repair down to -10°C	-10°C → 2 h. +5°C → 1 h. +20°C → 1 h.	29
<b>MasterEmaco T 2040</b>	Thixotropic 3K resin repair mortar	Repair in industry and cold chambers, for temperatures down to -25°C	-20°C → 24* h. -5°C → 2* h. +5°C → 2*-8 h. +20°C → 2 h.	30
<b>MasterEmaco T 2800 PG</b>	Fluid 3K resin repair mortar	Large and heavy manholes, repairs of large areas	-20°C → 24* h. -5°C → 2* h. +5°C → 2*-8 h. +20°C → 2 h.	31

\* = with RS (fast) Part B.



## Products in More Detail

### Overview of Products

24 \_ MasterEmaco T 1100 TIX  
25 \_ MasterEmaco T 1200 PG  
26 \_ MasterEmaco T 1400 FR  
28 \_ MasterEmaco S 5440 RS

29 \_ MasterEmaco T 545  
30 \_ MasterEmaco T 2040  
31 \_ MasterEmaco T 2800 PG  
32 \_ MasterFlow 960







# MasterEmaco T 1100 TIX

## Application temperature



## Technology

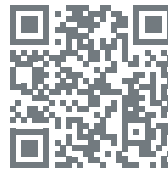
- Advanced cement technology

## Return to service



	-20°C	-5°C	+5°C	+20°C
<b>Pedestrian traffic</b>	-	4 h.	3 h.	2 h.
<b>Manholes</b>	-	4 h.	3 h.	2 h.
<b>Vehicular traffic</b>	-	8 h.	4 h.	2 h.

## Find out more:



Fields of application	Properties	Benefits
<ul style="list-style-type: none"> <li>Horizontal concrete repair for concrete roads, slabs, floors, bridges, parking lots, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Long working time, approx. 20 min. at 20 °C</li> </ul>	<ul style="list-style-type: none"> <li>Ensures monolithism of the repair</li> </ul>
<ul style="list-style-type: none"> <li>Manhole repair, wet and dry networks</li> </ul>	<ul style="list-style-type: none"> <li>EN1504-3 Class R4</li> </ul>	<ul style="list-style-type: none"> <li>Fast reopening to traffic without risk</li> </ul>
<ul style="list-style-type: none"> <li>Road-nosing repair</li> </ul>	<ul style="list-style-type: none"> <li>Creation of a homogeneous microstructure with low shrinkage</li> </ul>	<ul style="list-style-type: none"> <li>Durability, low cracking tendency</li> </ul>
<ul style="list-style-type: none"> <li>Bedding for pavement in the event of needed repair</li> </ul>	<ul style="list-style-type: none"> <li>Good thixotropic properties</li> </ul>	<ul style="list-style-type: none"> <li>Better adhesion and resistance to liquid ingress, such as oil and petrol</li> </ul>
<ul style="list-style-type: none"> <li>Urban facilities and traffic sign installations</li> </ul>		<ul style="list-style-type: none"> <li>Easy application even for high thicknesses; no formworks needed for manhole repair</li> </ul>



## Recommended for

- Small manholes
- Repair areas up to 10 m<sup>2</sup>
- Repairs on slopes





# MasterEmaco T 1200 PG

## Application temperature



## Technology

- Advanced cement technology

## Return to service



	-20°C	-5°C	+5°C	+20°C
<b>Pedestrian traffic</b>	–	4 h.	3 h.	2 h.
<b>Manholes</b>	–	4 h.	3 h.	2 h.
<b>Vehicular traffic</b>	–	8 h.	4 h.	2 h.
<b>Road nosing</b>	–	24 h.	12 h.	6 h.

## Find out more:



Fields of application	Properties	Benefits
<ul style="list-style-type: none"> <li>Horizontal concrete repair for roads, slabs, floors, bridges, parking lots, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Long working time, approx. 20 min. at 20°C</li> </ul>	<ul style="list-style-type: none"> <li>Ensures monolithism of the repair</li> </ul>
<ul style="list-style-type: none"> <li>Manhole repair, wet and dry networks</li> </ul>	<ul style="list-style-type: none"> <li>EN1504-3 Class R4</li> </ul>	<ul style="list-style-type: none"> <li>Fast reopening to traffic without risk</li> </ul>
<ul style="list-style-type: none"> <li>Road-nosing repair</li> </ul>	<ul style="list-style-type: none"> <li>Creation of a homogeneous microstructure with low shrinkage</li> </ul>	<ul style="list-style-type: none"> <li>Durability, low cracking tendency</li> </ul>
<ul style="list-style-type: none"> <li>Urban facilities and traffic-sign installation grouting</li> </ul>	<ul style="list-style-type: none"> <li>Good flowability</li> </ul>	<ul style="list-style-type: none"> <li>High final strength resistance</li> </ul>
<ul style="list-style-type: none"> <li>Grouting for pavement in the event of needed repair</li> </ul>		<ul style="list-style-type: none"> <li>Better adhesion and resistance to liquid ingress such as oil and petrol</li> </ul>
		<ul style="list-style-type: none"> <li>Easy application in large areas, perfect for filling with a formwork for manholes</li> </ul>



## Recommended for

- Large and heavy manholes
- Repair of large areas
- Fixing elements



# MasterEmaco T 1400 FR

## Application temperature



## Technology

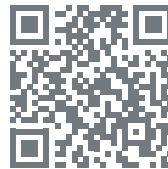
- Advanced cement technology

## Return to service



	-20°C	-5°C	+5°C	+20°C
<b>Pedestrian traffic</b>	-	4 h.	3 h.	2 h.
<b>Manholes</b>	-	4 h.	3 h.	2 h.
<b>Vehicular traffic</b>	-	8 h.	4 h.	2 h.
<b>Road nosing</b>	-	24 h.	12 h.	4 h.

## Find out more:



Fields of application	Properties	Benefits
<ul style="list-style-type: none"> <li>Horizontal concrete repair for roads, slabs, floors, and bridges with high traffic and loads</li> </ul>	<ul style="list-style-type: none"> <li>Long working time, approx. 20 min. at 20 °C</li> </ul>	<ul style="list-style-type: none"> <li>Ensures monolithism of the repair</li> </ul>
<ul style="list-style-type: none"> <li>Manhole repair, wet and dry networks subject to high traffic and loads</li> </ul>	<ul style="list-style-type: none"> <li>EN1504-3 Class R4</li> </ul>	<ul style="list-style-type: none"> <li>Fast re-opening to traffic without risk</li> </ul>
<ul style="list-style-type: none"> <li>Road-nosing repair</li> </ul>	<ul style="list-style-type: none"> <li>Creation of a homogeneous microstructure with low shrinkage</li> </ul>	<ul style="list-style-type: none"> <li>Durability, low cracking tendency</li> </ul>
	<ul style="list-style-type: none"> <li>Flowable consistency</li> </ul>	<ul style="list-style-type: none"> <li>Better adhesion and resistance to liquid ingress</li> </ul>
	<ul style="list-style-type: none"> <li>High ductility</li> </ul>	<ul style="list-style-type: none"> <li>Easy application in large areas</li> </ul>
		<ul style="list-style-type: none"> <li>Ideal in the event of dynamic loading</li> </ul>



## Recommended for

- Manhole on a curve or which is subject to high traffic
- Road nosing
- Repairs subject to high traffic and loads





# MasterEmaco S 5440 RS

## Application temperature



## Technology

- Advanced cement technology

## Return to service



	-20°C	-5°C	+5°C	+20°C
<b>Pedestrian traffic</b>	-	-	4 h.	2 h.

Fields of application	Properties	Benefits
<ul style="list-style-type: none"> <li>Structural repair of concrete structures</li> </ul>	<ul style="list-style-type: none"> <li>High thixotropy and ease of application</li> </ul>	<ul style="list-style-type: none"> <li>Allow fast re-opening and over-coating</li> </ul>
<ul style="list-style-type: none"> <li>Vertical, overhead, and horizontal applications</li> </ul>	<ul style="list-style-type: none"> <li>EN1504-3 Class R4</li> </ul>	<ul style="list-style-type: none"> <li>More flexibility in structural repairs in cold seasons or during nights</li> </ul>
<ul style="list-style-type: none"> <li>Repair within a short time slot, for example, bridges, marine structures</li> </ul>	<ul style="list-style-type: none"> <li>High early strengths</li> </ul>	<ul style="list-style-type: none"> <li>Potential earnings from quicker start-ups</li> </ul>
<ul style="list-style-type: none"> <li>Structural repairs at cold temperatures down to 0°C</li> </ul>	<ul style="list-style-type: none"> <li>Low cracking tendency and high durability</li> </ul>	<ul style="list-style-type: none"> <li>Longer maintenance intervals and lower costs during the life cycle of the structure</li> </ul>



## Recommended for

- Fast structural repairs of concrete in a short time span
- Repair of bridge columns and decks
- Repair of marine structures



# MasterEmaco T 545

## Application temperature



## Return to service

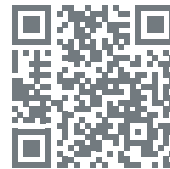


	-20°C	-10°C	+5°C	+20°C
<b>Pedestrian traffic</b>	-	2 h.	1 h.	1 h.
<b>Manholes</b>	-	2 h.	1 h.	1 h.
<b>Vehicular traffic</b>	-	2 h.	1 h.	1 h.

## Technology

- Mineral alternative technology

## Find out more:



Fields of application	Properties	Benefits
<ul style="list-style-type: none"> <li>▪ Horizontal, noncarbonated concrete repair for roads, slabs, floors, and bridges in negative temperatures</li> </ul>	<ul style="list-style-type: none"> <li>▪ No hazardous materials</li> </ul>	<ul style="list-style-type: none"> <li>▪ Able to work down to -10°C</li> </ul>
<ul style="list-style-type: none"> <li>▪ Manhole repair, wet and dry networks in cold weather</li> </ul>	<ul style="list-style-type: none"> <li>▪ High early and final strength</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ideal for all applications with high health and safety requirements</li> </ul>
<ul style="list-style-type: none"> <li>▪ Repair of cold chambers in the industry</li> </ul>	<ul style="list-style-type: none"> <li>▪ Good workability</li> </ul>	<ul style="list-style-type: none"> <li>▪ Allows for fast reopening, also in subzero conditions</li> </ul>
	<ul style="list-style-type: none"> <li>▪ EN 1504-3 Class R4</li> </ul>	<ul style="list-style-type: none"> <li>▪ Easy and fast to lay on the floor or pour into a formwork</li> </ul>
		<ul style="list-style-type: none"> <li>▪ Compliance with the highest repair requirements</li> </ul>



## Recommended for

- Concrete floor or road repair in negative temperatures
- Cold chambers in the industry
- Urgent repairs in cold conditions



# MasterEmaco T 2040

## Application temperature



## Technology

- APS (Advanced Polymer System) Technology

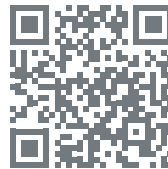
## Return to service



	-20°C	-5°C	+5°C	+20°C
<b>Pedestrian traffic</b>	24 h.*	2 h.*	2*-8 h.	2 h.
<b>Manholes</b>	24 h.*	3 h.*	3*-8 h.	3 h.
<b>Vehicular traffic</b>	24 h.*	4 h.*	4*-12 h.	3 h.
<b>Road nosing</b>	24 h.*	4 h.*	4*-12 h.	3 h.

\*= with RS (fast) Part B.

## Find out more:



Fields of application	Properties	Benefits
<ul style="list-style-type: none"> <li>▪ Horizontal repair for concrete slabs in industrial applications where chemical resistance is needed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Chemical resistant</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fast reopening to traffic</li> </ul>
<ul style="list-style-type: none"> <li>▪ Repair of concrete floors in very low temperatures down to -25 °C</li> </ul>	<ul style="list-style-type: none"> <li>▪ High early and final strength</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ideal for heavy traffic and slopes</li> </ul>
<ul style="list-style-type: none"> <li>▪ Repair of cold chambers in the food industry</li> </ul>	<ul style="list-style-type: none"> <li>▪ Certificate of compliance for repair of food stuff areas</li> </ul>	<ul style="list-style-type: none"> <li>▪ Suitable for severe industrial environments</li> </ul>
	<ul style="list-style-type: none"> <li>▪ Thixotropic</li> </ul>	<ul style="list-style-type: none"> <li>▪ Hardens down to -25 °C</li> </ul>



## Recommended for

- Patching repair in industrial applications and cold chambers
- Horizontal repair in temperatures down to -25 °C



# MasterEmaco T 2800 PG

## Application temperature



## Technology

- APS (Advanced Polymer System) Technology

## Return to service



	-20°C	-5°C	+5°C	+20°C
<b>Pedestrian traffic</b>	24 h.*	2 h.*	2*-8 h.	2 h.
<b>Manholes</b>	24 h.*	3 h.*	3*-8 h.	3 h.
<b>Vehicular traffic</b>	24 h.*	4 h.*	4*-12 h.	3 h.
<b>Road nosing</b>	24 h.*	4 h.*	4*-12 h.	3 h.

\*= with RS (fast) Part B.

## Find out more:



Fields of application	Properties	Benefits
<ul style="list-style-type: none"> <li>▪ Horizontal repair for concrete slabs in industrial applications where chemical resistance is needed</li> </ul>	<ul style="list-style-type: none"> <li>▪ Chemical resistant</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fast re-opening to traffic</li> </ul>
<ul style="list-style-type: none"> <li>▪ Repair of concrete floors in very low temperatures down to -25 °C</li> </ul>	<ul style="list-style-type: none"> <li>▪ High early and final strength</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ideal for heavy traffic</li> </ul>
<ul style="list-style-type: none"> <li>▪ Repair of cold chambers in the food industry</li> </ul>	<ul style="list-style-type: none"> <li>▪ Available in two grades for low and normal temperatures</li> </ul>	<ul style="list-style-type: none"> <li>▪ Suitable for severe industrial environment</li> </ul>
<ul style="list-style-type: none"> <li>▪ Paving of steel bridge decks</li> </ul>	<ul style="list-style-type: none"> <li>▪ Flowable</li> </ul>	<ul style="list-style-type: none"> <li>▪ Goes down to -25 °C</li> </ul>
		<ul style="list-style-type: none"> <li>▪ Primer-free adhesion to steel</li> </ul>



## Recommended for

- Repair of large horizontal areas and cold chambers
- Pavement of steel deck bridges



# MasterFlow 960

## Application temperature



## Technology

- Advanced cement technology

## Return to service



	-20°C	-5°C	+5°C	+20°C
<b>Loading Time*</b>	-	24 h.	24 h.	3 h.

\*Time needed for curing to carry the self-weight of the anchored element, which does not exceed the 20% of the total service loads.

## Find out more:



Fields of application	Properties	Benefits
<ul style="list-style-type: none"> <li>Anchoring of steel rebars</li> </ul>	<ul style="list-style-type: none"> <li>Cement based</li> </ul>	<ul style="list-style-type: none"> <li>Very good properties against fire, can be applied under lower temperatures than resin, can be applied on wet concrete</li> </ul>
<ul style="list-style-type: none"> <li>Anchoring of threaded rods</li> </ul>	<ul style="list-style-type: none"> <li>One component powder to be mixed with water</li> </ul>	<ul style="list-style-type: none"> <li>Exists in two consistencies: a fluid version and a thixotropic version</li> </ul>
<ul style="list-style-type: none"> <li>For floors and walls</li> </ul>	<ul style="list-style-type: none"> <li>High early and final strength</li> </ul>	<ul style="list-style-type: none"> <li>Short re-opening</li> </ul>
	<ul style="list-style-type: none"> <li>Fire-resistant</li> </ul>	<ul style="list-style-type: none"> <li>Fulfil the EN 1504-6 norm</li> </ul>
	<ul style="list-style-type: none"> <li>High E-modulus</li> </ul>	<ul style="list-style-type: none"> <li>No movement of the anchor</li> </ul>
	<ul style="list-style-type: none"> <li>Fluid and thixotropic version available, for horizontal &amp; vertical applications</li> </ul>	<ul style="list-style-type: none"> <li>Suitable for vertical or horizontal application</li> </ul>



## Recommended for

- Anchoring at big jobsites and civil-engineering applications
- Anchoring of steel rebars with big diameters







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# Product Selector for Fast Repair Solutions

	Industrial parks and parking lots				Road repair						Civil engineering		
	Rail, element fixing, and anchoring	Repair of horizontal concrete floors	Repair of floors in cold chambers	Vertical and overhead repair of concrete elements	Anchoring road elements	Concrete road repair	Manhole repair	Road-nosing repair	Urban facilities and traffic-sign grouting	Sidewalk renovation	Anchoring of steel rebar and threaded rods	Vertical and overhead concrete repair	Horizontal concrete repair
MasterEmaco S 5440 RS		●		●								●	●
MasterEmaco T 1100 TIX		●	●			●	●	●	●	●			●
MasterEmaco T 1200 PG		●	●			●	●	●	●	●			●
MasterEmaco T 1400 FR		●	●			●	●	●					●
MasterFlow 960	●				●						●		
MasterEmaco T 545		●	●			●		●		●			●
MasterEmaco T 2040		●	●										●
MasterEmaco T 2800 PG	●	●	●							●			●

● Recommended      ● Appropriate      ● Specific cases



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Solutions for precision grouting

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