

MasterSeal[®]

Solutions for concrete
protection of car parks





Master Builders Solutions from BASF

The **Master Builders Solutions** brand brings all of BASF's expertise together to create chemical solutions for new construction, maintenance, repair and renovation of structures. Master Builders Solutions is built on the experience gained from more than a century in the construction industry.

The know-how and experience of a global community of BASF construction experts form the core of Master Builders Solutions. We combine the right elements from our portfolio to solve your specific construction challenges. We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide. We leverage global BASF technologies, as well as our in-depth knowledge of local building needs, to develop innovations that help make you more successful and drive sustainable construction.

The comprehensive portfolio under the Master Builders Solutions brand encompasses concrete admixtures, cement additives, chemical solutions for underground construction, waterproofing solutions, sealants, concrete repair & protection solutions, performance grouts and performance flooring solutions.



The reliance on cars as the primary method of transport has created challenges in the developed world for many years, and is now having the same impact upon the rapidly developing Asian countries. One result of the increase in the numbers of cars is the corresponding increased need by drivers to find places to park them. Thus the construction and maintenance of car parks is a growing concern for city planning departments to address public

safety issues and provide easily accessible parking within the city. This provides an opportunity for developers to work closely with local governments to minimize inner city congestion and provide safe, functional car parking facilities. Master Builders Solutions from BASF includes the products, systems and technical expertise that can make every car park project a success.

Challenges

Car parks present unique challenges. Unlike other high rise buildings, car parks require large open areas, can be partially exposed to the elements and are subject to a significant amount of dynamic movement caused by moving vehicles as well as thermal expansion due to temperature changes from day to night and winter to summer.

In cold climates, car parks are also contaminated by ingress of chlorides from deicing salts, and throughout most of Asia Pacific, blowing rain or water dripping off incoming vehicles often leaves them constantly wet. Additionally, parking decks are vulnerable to motor oil and other caustic fluids that leak from cars.

Such challenges should be considered when selecting the materials of construction. Ignoring these factors can result in deterioration of the concrete surfaces, causing pot-holes and corrosion of the reinforcing steel and a potential costly refurbishment. In worst cases the demolition and rebuilding of a number of car parks has been the only solution.

MasterSeal® - solutions for new car parks

For a designer planning a new car park, there are a number of key issues to consider. These include the number of cars it will hold, how to control traffic flow, the use of a large open space to facilitate easy parking combined with good lighting for safety, and finally the overall budget. What we are seeing are creative designs that require innovative solutions for extending the useful life of the structure and

offer a safe place to park in an inner city environment. The use of permanent formwork allows for very large spans which satisfy the need for open space, but it also creates a complex environment at the same time. BASF's development team has identified several problems common to car parks, and we have created a sustainable solution that addresses each challenge. These problems and their solutions include:

Industry needs	Solutions
To cope with dynamic and thermal movement	Specify a flexible waterproof membrane in project design
To prevent de-icing salts and chemicals from weakening the concrete	An impervious layer over the concrete deck
To cope with cracks that occur during operation	Use of a membrane that can truly bridge cracks
To cope with the erosive and torsional forces of the tyres on corners and ramps	A strong, durable layer that protects the membrane and absorbs the force of the turning vehicles
To protect pedestrian safety in the car park	A surface with variable slip resistance
The desire for an attractive design	A surface that allows for colour choices and designation of pedestrian areas
To keep the car park continuously operational	A system that allows repairs to be conducted overnight and for the full use of the car park the next day

Our analysis connected the needs of the owners and the car park designers with a Master Builders Solutions development team. The MasterSeal Trafficable Membrane System represents the culmination of our applications-driven development process.

This proven system combines multi-functional, compatible products to create a deck system that copes with almost any level of traffic and

withstands all the challenges identified. In addition, the system includes a spray-applied membrane that completely cures in less than a minute, creating an immediate waterproof seal. The use of MasterSeal membrane system in new construction has increased the useful life of car parks and greatly reduced the need for repairs by providing a long-lasting protective wearing surface to prevent concrete deterioration.

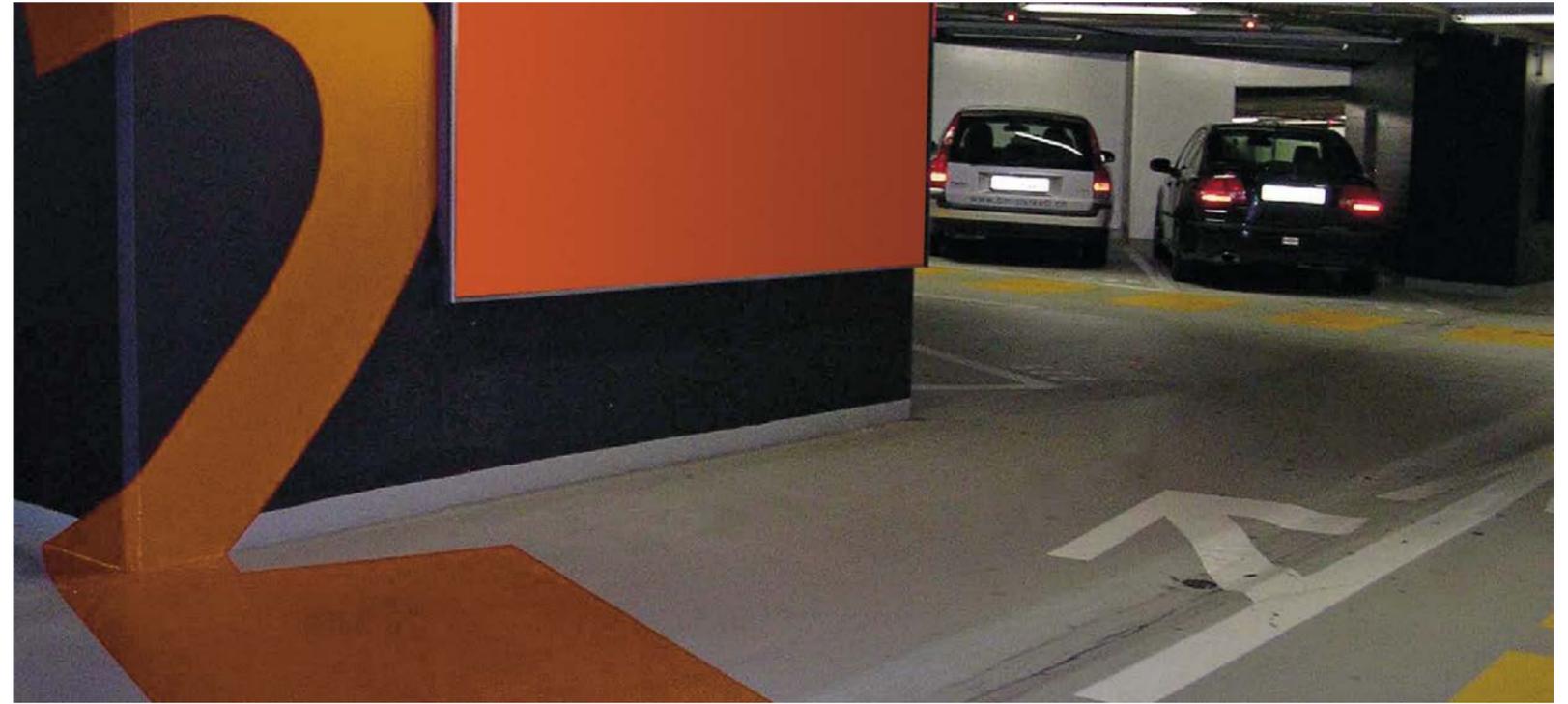
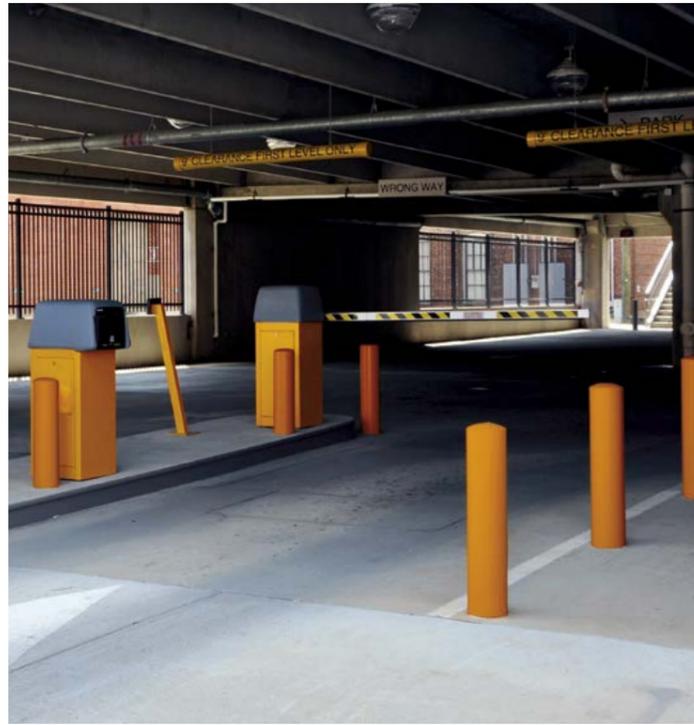


MasterSeal solutions for existing car parks

Many older car parks are suffering from damage caused by heavy vehicular traffic and contaminants deposited inside the structure from tyres and bodywork. Stress to concrete caused by de-icing salt and regular contact with water is second only to the stress a concrete wharf immersed in seawater experiences. The deterioration of the concrete compromises their long term use as well as the safety of customers, employees and the vehicles that park in them.

To remedy this considerable problem, BASF's development teams drew upon many years of application experience combined with time-tested repair techniques to design trafficable membrane solutions that restore the car park to full service with minimum disruption. The rehabilitation and reuse of these structures prove to be far more economical and environmentally sustainable than their demolition and rebuilding.





Comprehensive single source solutions

The MasterSeal car park solutions are compatible with our MasterEmaco® and MasterProtect® remediation systems. Fiber reinforced polymer strengthening systems like our MasterBrace® range can be used not only to return a structure to its original load capacity, but can also be used to allow the owner to consider adding floors and expanding floor space vertically to increase revenue.

In Asia Pacific, where the need for car parks is rapidly rising, it is vital to build long-lasting and resilient structures that are able to withstand the elements of weather and corrosion. However, every car park design is different depending on its location, climate and usage. BASF's development teams have the extensive experience and global expertise to work closely with designers to tailor a solution specifically to a client's needs. The MasterSeal car park systems offer unmatched answers to the industry and are set to change the way designers and builders conceptualize and deliver car parks.

Connecting partners for better answers

Continuous innovation and tailor-made solutions ensure customers using Master Builders Solutions are more successful. We operate across the Asia Pacific region, with more than 80 % of our products produced within the region. The corporate culture of BASF is focused upon innovations, customers and safety. BASF has been rated among the top employers in many countries through the region because we ensure workplace safety, support the communities in which we are located and strive to utilize and produce safe and environmentally appropriate technologies.

Master Builders Solutions offers a wide range of building construction products, concentrating on repair and protection solutions, performance flooring solutions, precision grouting solutions and waterproofing solutions. Our internationally connected technical experts and our local sales force combine forces to ensure that solutions are tailored to meet local conditions.

MasterSeal Traffic system	2500 HD	2000 HD	1500 MD
Renovation of operational car park	●		
Fast return to service ramps	●		
Walkways			●
Ramps and turning circles	●	●	
Parking decks over occupied space	●	●	
Non exposed parking deck			●
Exposed parking deck	●	●	



Master Builders Solutions from BASF for the Construction Industry

MasterAir®

Complete solutions for air entrained concrete

MasterBrace®

Solutions for concrete strengthening

MasterCast®

Solutions for the manufactured concrete product industry

MasterCem®

Solutions for cement manufacture

MasterEmaco®

Solutions for concrete repair

MasterFinish®

Solutions for formwork treatment

MasterFlow®

Solutions for precision grouting

MasterFiber®

Comprehensive solutions for fiber reinforced concrete

MasterGlenium®

Solutions for hyperplasticized concrete

MasterInject®

Solutions for concrete injection

MasterKure®

Solutions for concrete curing

MasterLife®

Solutions for enhanced durability

MasterMatrix®

Advanced rheology control solutions for self-consolidating concrete

MasterPel®

Solutions for water tight concrete

MasterPolyheed®

Solutions for high performance concrete

MasterPozzolith®

Solutions for water-reduced concrete

MasterProtect®

Solutions for concrete protection

MasterRheobuild®

Solutions for superplasticized concrete

MasterSeal®

Solutions for waterproofing and sealing

MasterRoc®

Solutions for underground construction

MasterSet®

Solutions for retardation control

MasterSure®

Solutions for workability control

MasterTop®

Solutions for industrial and commercial floors

Master X-Seed®

Advanced accelerator solutions for pre-cast concrete

Ucrete®

Flooring solutions for harsh environments

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