



## Driving construction innovations & sustainability in Asia Pacific

Master Builders Solutions,  
the brand for the  
construction industry



# About Master Builders Solutions

At Master Builders Solutions, we offer advanced chemical solutions for the construction, maintenance, repair and renovation of structures. We combine economic success with environmental protection and social responsibility. We leverage global technologies and our in-depth knowledge of local building needs to develop innovations that help make our customers more successful and drive sustainable construction. Through science and innovation, we enable our customers in nearly every industry to meet the current and future needs of society.

## About Master Builders Solutions

**Master Builders Solutions** is our global brand for the construction chemicals industry. Active presence in the construction industry for more than a century, Master Builders Solutions offering a range of construction chemicals solutions to meet the growing demand for high-performance, differentiated and sustainable products in Asia Pacific.

**Our comprehensive portfolio of advanced chemical solutions includes:**

 <p>Concrete Admixtures</p>	 <p>Cement Additives</p>	 <p>Chemical Solutions For Underground Construction</p>	 <p>Waterproofing Solutions</p>
 <p>Sealants</p>	 <p>Performance Grouts</p>	 <p>Concrete Repair And Protection Solutions</p>	 <p>Performance Flooring Solutions</p>

We collaborate with our clients closely to offer innovative solutions tailored to their projects. Backed by our robust global and local R&D expertise, an international community of construction experts and a worldwide record of construction projects from which know-how, experience and insights can be readily harnessed to address any technical specifications or challenges.

Apart from providing high-performance and cost-effective solutions, we also emphasize “sustainability” geared towards helping our customers meet the increasingly stringent environmental guidelines laid down by regulatory authorities and fulfill their social responsibilities as builders and infrastructure developers.

# Master Builders Solutions Driving Sustainable Construction Solutions



Master Builders Solutions is working continuously to raise the benchmarks of construction performance through innovation, advanced products and expert services. Our solutions actively contribute to the creation of more sustainable solutions with increased commercial, environmental and social value.

We adopt a holistic approach to each new construction challenge, providing comprehensive, tailored solutions, and creating structures that are ultimately more efficient and enduring. By translating technological advancements in chemistry into real-world solutions, we help to improve the lifecycle performance of structures, as well as making construction process more energy-making and cost-efficient by:

- Reducing emissions during construction processes
- Utilizing recycled and renewable materials and products that preserve resources
- Saving labor costs and enable faster construction
- Providing solutions that support water conservation and management
- Lowering toxicity and VOC (volatile organic compounds) emissions to create a healthier environment for installers and occupants
- Developing products that are resistant to the growth of bacteria and fungi
- Improving safety through skid-resistant and seismic solutions
- Preserving and restoring buildings and structures

## Construction Chemicals In Asia Pacific



Serving more than  
**20 countries**  
with over  
**40 production sites**  
in the region

# Master Builders Solutions Milestone

The **Master Builders Solutions** brand brings all of its expertise together to create chemical solutions for new construction, maintenance, repair and renovation of structures.

Our innovations have changed a whole industry. From **Masterplate**, a ferrous cement flooring solutions which from 1911 onwards drastically improved the durability and appearance of factory floors, to the development of a vast variety of concrete admixtures since the 1930s, to the revolutionary hardening accelerator **Master X-Seed** and rheology control agent **MasterEase**.

1900s

1909

**Master Builders®**  
was founded

1927

**Embeco®**  
non-shrink cement grout  
with metallic aggregate

1950s

1968

**Melment®**  
Superplasticizer for high-  
early strength applications



1911

**Masterplate®**  
iron-armored cement  
floor system

1932

**Pozzolith®**  
Plasticizer



1969

**Ucrete®**  
Polyurethane  
cement flooring



1970s

1975

**Rheobuild®**  
Superplasticizer for ready-mix  
and precast applications



1987

**MasterTop®**  
Epoxy and polyurethane-  
based flooring system



1996

**Glenium®**  
Ultra-high-range  
superplasticizer



2000s

1987

**Polyheed®**  
Mid-range water reducing  
admixture



1994

**Meyco® SA**  
Alkali-free accelerator for  
shotcrete



2009

**X-Seed®**  
High-speed  
concrete hardener



2017

**MasterSeal® 7000 CR**  
Waterproofing and  
protective coating for  
wastewater treatment  
concrete structures



2015

**MasterEase®**  
Low viscosity concrete



2013

Launch of  
**MASTER®  
BUILDERS  
SOLUTIONS**

## Solutions For Concrete Production



### Challenges

Concrete and production of concrete in the construction industry face manifold challenges, including:

- Scarcity of resources including skilled manpower, good quality raw materials and water
- Ever-higher demands on cost and speed
- Tighter specifications in durability and sustainability



### Challenges

Cement manufacturers are constantly challenged to increase production efficiency, improve the performance of cement they produce and cut CO<sub>2</sub> emissions.

### Our Solutions

#### MasterGlenium®

A range of water-reducing admixtures specially formulated to improve concrete slump retention, high/early strengths and durability, for use in hot and cold climates.

#### MasterEase®

A superplasticizer for low-viscosity concrete, designed to improve its rheological properties thus significantly facilitate pumping, placing and finishing of concrete.

#### MasterRheobuild®

Admixtures that provide superior cement dispersion for the creation of flowable concrete with a low water / cement ratio and improve placement of fresh concrete for higher production efficiency.

#### MasterPozzolith®

A series of water-reducing admixtures that reduce concrete water content, control the setting rate and improve finishing properties.

#### MasterMatrix®

Viscosity Modifying Agent (VMA) admixtures formulated to achieve stable low fines self-consolidating concrete.

#### Master X-Seed®

Admixtures that accelerate concrete hardening at early stages of curing.

#### MasterLife®

Admixtures that improve concrete's resistance to deterioration caused by abrasion, corrosion of steel, alkali silica reaction, sulfate attack, and drying shrinkage cracking.

#### MasterSuna®

A SBS (Sand Blocking Solution) admixture formulated and designed to mitigate and block negative effects of swelling clay found in manufactured sand. It improves the performance of concrete and enables the use of poor manufactured sands which would otherwise be discarded.

#### MasterCem®

A range of grinding aids, performance enhancers and specialty products to enhance cement production efficiency and quality, with reduced cost and mitigated environmental impact.

### Burj Khalifa, Dubai, UAE



Burj Khalifa, the tallest tower till date standing at 828 meters high. Master Builders Solutions developed a concrete mix that can be pumped to a height of >600 meters without interruption, to shape the structural form of the tower. Withstanding high ambient temperatures without segregating, MasterGlenium Sky admixtures

maintained concrete workability and even enabled the concrete mix to quickly hardened to attain sufficient strength for construction to continue within a very short period of time. This made it possible to complete two stories per week instead of the one per week standard in general.

## Solutions For Underground Construction



### Challenges

Each tunneling and underground mining project is faced with challenges from geological conditions to tight completion timeframes and specific project design requirements.

### Our Solutions

#### MasterRoc®

Offers a number of market-leading innovations to address both technical and other project challenges, including:

- Sprayed concrete for fast, efficient and safe concrete spraying operation with Master Builders Solutions admixtures for rheology control and set acceleration
- Injection for ground stabilization, water stopping, cracks and cavity filling
- Waterproofing to prevent damage and enhance durability
- TBM chemical products for the safe and efficient operation of tunnel boring machines

### Gosowong Mining Project, Indonesia



Sprayed concrete solution specially developed by Master Builders Solutions to improve production, safety and underground geotechnical stability at the same time.

### Gotthard Base Tunnel, Switzerland



Construction of the world's longest rail tunnel - a 57 kilometer Gotthard Base Tunnel. Combining MasterGlenium superplasticizers - to make the concrete flowable and workable, with shotcrete accelerators - to allow concrete to solidify and harden within seconds after being sprayed on the tunnel wall.

## Solutions For Performance Flooring



### Challenges

Industrial or commercial floorings are required to withstand tough environments, against aggressive chemicals; mechanical and thermal stress as well as heavy wear and tear. The flooring solutions provided must also be highly flexible in terms of functionality and design and capable of ensuring a high level of indoor air quality.

### Our Solutions

#### MasterTop®

Offers cementitious, polyurethane and epoxy based flooring systems that are attractive, hygienic, easily cleanable, durable and pleasant to walk on.

#### Ucrete®

A safe, durable and long-lasting flooring system using a unique polyurethane resin technology to gain exceptional resistance against aggressive chemicals as well as extreme mechanical and thermal shock.

### Lion Nathan East Tamaki Brewery, New Zealand



Commonly known as 'Project Century', Lion Nathan brewery situated in South Auckland is built to last for 100 years. Constructed with a focus on quality and longevity, floors for the facility were installed with Ucrete DP heavy duty PU-hybrid system to meet the performance expectations.

## Solutions For Waterproofing & Sealing



### Our Solutions

#### MasterSeal®

A one-stop array of waterproofing solutions to enhance the service life of affected structures and reduce building maintenance needs with their fast applications and low environmental impact.

### Challenges

Environmental influences, such as rain, snow and chemical exposure, can cause water and moisture ingress damage to a variety of building structures.

### Marina Bay Sands, Singapore



The Marina Bay Sands is a spectacular three-tower construction supporting a protruding roof garden. The Master Builders Solutions Construction Chemicals team was invited to develop a cost-efficient concrete mix design that met the technical specifications for basement slabs, walls, structural beams and columns.

Around 1.2 million liters of MasterRheobuild hyperplasticizer, and 1 million liters of MasterPozzolith setting retarder was required for the project. In addition, around 40,000 square meters of wet areas and balconies in 983 hotel rooms was sealed using MasterSeal HLM 5000.

## Solutions For Concrete Repair & Protection



### Our Solutions

#### MasterBrace®

A concrete repair and strengthening system based on fiber reinforced polymer composites to provide extra strength and stability to structural elements, increase their load-bearing capacity and restore their structural integrity following deterioration.

Also includes structural adhesives such as segmental bridge adhesives and for bonding new concrete to old.

#### MasterInject®

A range of injection resins used to seal the cracks in concrete to prevent active leakages and for effective load transfers.

Also used to seal cracks in concrete to restore its structural integrity.

#### MasterProtect®

Offers long-term protection and durability to concrete and masonry structures, preventing spalling and further deterioration and high maintenance costs, through a range of high-performance water repellents, high-build elastomeric and chemical resistant coatings.

### Challenges

Extreme weather conditions, environmental contaminants and corrosive elements can cause damage to concrete structures, leading to corrosion and even structural failure.

### Our Solutions

#### MasterEmaco®

Offers a portfolio of primers, cementitious and resinous repair mortars and fairing coats to re-establish structural integrity and restore aesthetics of concrete structures with a fast return to service.

### Second Penang Bridge, Malaysia



Photo courtesy of JKSB

At 24 kilometres in length, the Second Penang Bridge in Malaysia is the longest bridge in Southeast Asia. This dual carriageway, cable-stayed toll bridge connects Bandar Cassia on peninsular Malaysia with Batu Maung on Penang Island.

A construction project of this scale was a challenge for all construction partners. The solutions we provided helped

to ensure that the 55m-long pre-cast concrete elements were produced efficiently and to the highest quality standards.

MasterBrace epoxy bonding system was used to bond the individual box girders segment together to form the bridge.

# Solutions For Grouting



## Challenges

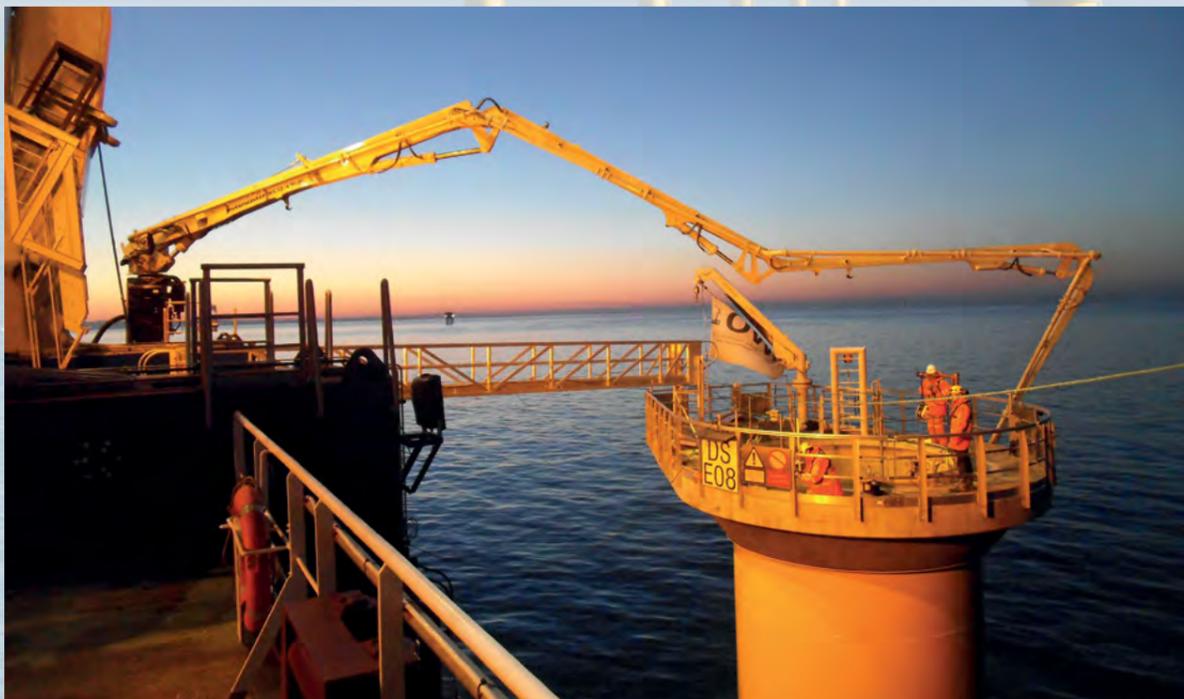
Heavy machines and equipment, such as wind turbines, need to be safely anchored and precisely adjusted, horizontally or vertically.

## Our Solutions

### MasterFlow®

A range of grouting solutions that facilitates faster, safer and more effective installations of heavy machinery. It also helps ensure higher productivity of the machinery installed, its longer service lifespan and reduced future maintenance needs.

## West Of Duddon Sands Offshore Windfarm, United Kingdom



MasterFlow 9500 ExagROUT was pumped into the monopile transition piece connections using the FoundOcean Super Pan Mixer. The project to install 108 foundations is a world record in the industry, and a new benchmark for future offshore windfarms.

# Our Solutions For Your Construction Challenges

### 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

### MasterEase

Low viscosity for high-performance concrete

### MasterEmaco

Solutions for concrete repair

### MasterFinish

Solutions for formwork treatment and surface improvement

### MasterFlow

Solutions for precision grouting

### MasterFiber

Comprehensive solutions for fiber-reinforced concrete

### MasterGlenium

Solutions for high-performance concrete

### MasterInject

Solutions for concrete injection

### MasterKure

Solutions for concrete curing

### MasterLife

Solutions for enhanced durability

### MasterMatrix

Advanced rheology control for concrete

### MasterPel

Solutions for water tight concrete

### MasterPolyheed

Solutions for mid-range concrete

### MasterPozzolith

Solutions for water-reduced concrete

### MasterProtect

Solutions for concrete protection

### MasterRheobuild

Solutions for high-strength concrete

### MasterRoc

Solutions for underground construction

### MasterSeal

Solutions for waterproofing and sealing

### MasterSet

Solutions for set control

### MasterSuna

Solutions for sand and gravel in concrete

### MasterSure

Solutions for extraordinary workability retention

### MasterTop

Solutions for industrial and commercial floors

### Master X-Seed

Advanced accelerator solutions for concrete

### Ucrete

Flooring solutions for harsh environments

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