



# MasterFlow®

## Chemical Anchoring Systems

Solutions for medium and heavy duty  
anchoring



# Master Builders Solutions

## Master Builders Solutions

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

Market leading products are developed from technically advanced formulations, optimized for the harsh environmental conditions found in the Middle East.

## Our Comprehensive Portfolio

- » Concrete admixtures
- » Cement additives
- » Chemical solutions for underground construction
- » Waterproofing solutions
- » Sealants
- » Tile fixing systems
- » Concrete repair and protection solutions
- » Performance grouts
- » Performance flooring solutions
- » Wall systems
- » Fire protection systems





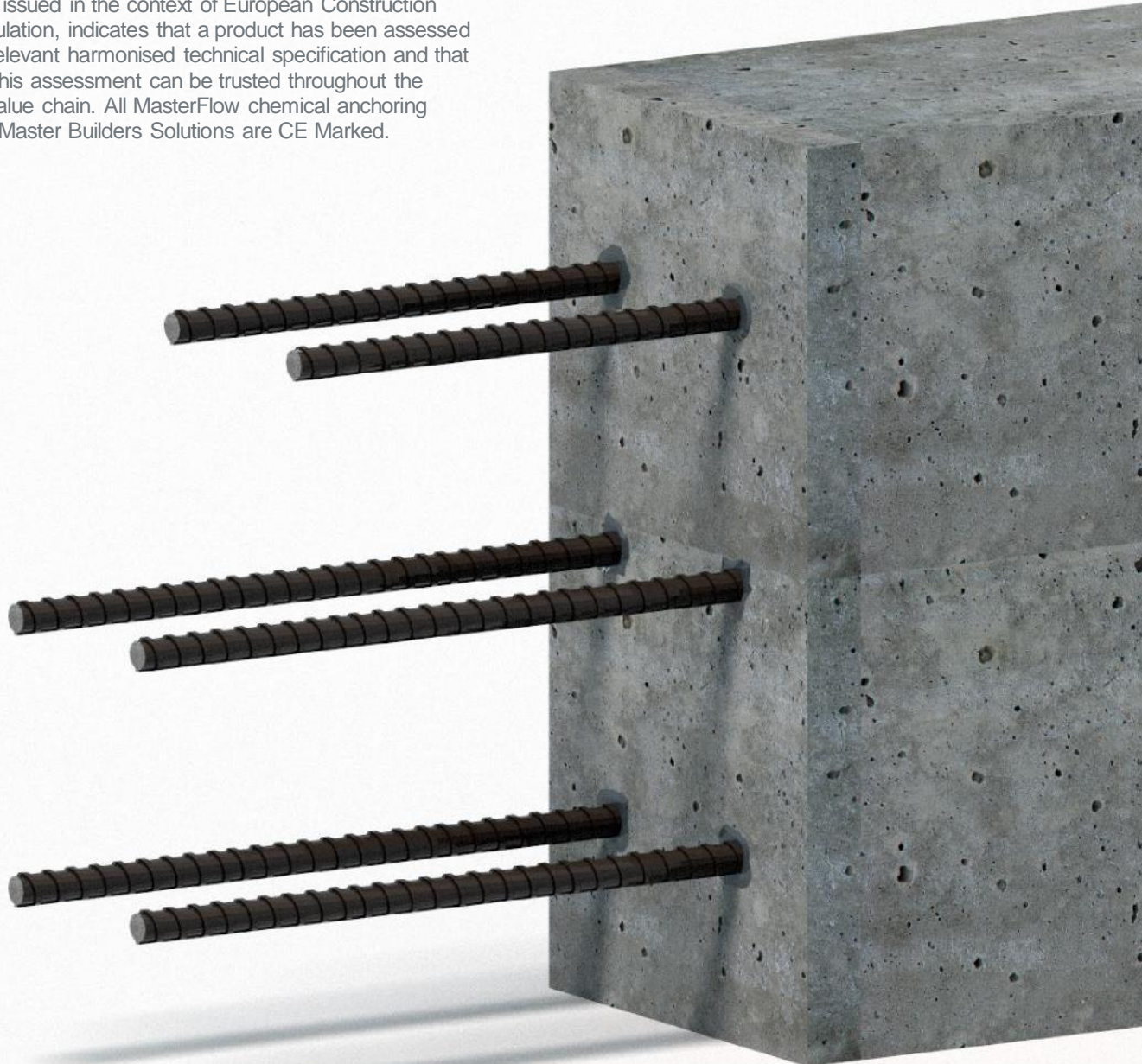
# MasterFlow<sup>®</sup> Chemical Anchoring Systems

**Uncompromised performance level.** If you are looking for the right chemical anchoring system for your project, you want to rely on expertise and reputation that has been built up over decades. The Master Builders Solutions experts will provide you with the perfect solution to meet all your needs.

Master Builders Solutions offer a complete range of MasterFlow polyester, vinylester, epoxy acrylate styrene free and pure epoxy based chemical anchoring systems for any application and any climate. Without compromising on quality or ease-of-use, MasterFlow chemical anchors are specially formulated to deliver performance that is required by the modern industrial and commercial construction markets. The product range has undergone independent testing and received numerous technical approvals and certifications that are recognized across the world.

## CE Mark

The CE Mark, issued in the context of European Construction Products Regulation, indicates that a product has been assessed according to relevant harmonised technical specification and that the results of this assessment can be trusted throughout the construction value chain. All MasterFlow chemical anchoring systems from Master Builders Solutions are CE Marked.





# Product Selection Guide

Use the Product Selection Guide to choose the right product for your application and particular requirements.

Product Selection Criteria		MasterFlow® 916 AN	MasterFlow® 918 AN	MasterFlow® 920 ANS	MasterFlow® 932 AN	MasterFlow® 936 AN
Load Capacity	Medium	•	•	•	•	•
	High		•	•	•	•
	Very high			•	•	•
Installation Substrate	Solid masonry	•		•		
	Hollow masonry	•		•		
	Blocks	•		•		
	Rock	•	•	•	•	•
	Uncracked concrete	•	•	•	•	•
	Cracked concrete			•	•	•
Installation Conditions	Dry or wet holes	•	•	•	•	•
	Flooded holes	•	•	•		
Application	Anchoring threaded rods	•	•	•	•	•
	Anchoring rebars as anchors			•	•	•
	Rebar connections			•	•	•
Seismic	Category C1				•	
ETA Approval	Option 7	•	•	•		
	Option 1			•	•	
	TR023 Eurocode 2			•	•	•
Drilling Method	Rotary percussive / hammer*	•	•	•	•	•
	Diamond core					•
Product Colour	Grey	•	•	•	•	
	Red					•
Gelling Time	Slow gelling time				•	•
	Fast gelling time	•	•	•		
Curing Time	Slow curing time			•	•	•
	Fast curing time	•	•	•		

\*note: rotary hammer drilling method is not suitable for installations in masonry substrates



# MasterFlow 916 AN

## Polyester resin based anchoring grout

### MasterFlow 916 AN

MasterFlow 916 AN is a two component polyester resin based anchoring grout, for use with threaded rods only in concrete and masonry.

MasterFlow 916 AN Components A and B are packed at the correct ratio within a foil pack in a single component cartridge and are automatically mixed during the extrusion within the static mixing nozzle.

Easy to use and suitable for medium load applications, MasterFlow 916 AN is a versatile and cost effective anchoring system.

### European Technical Assessment

MasterFlow 916 AN European Technical Assessments:

- 1) ETA according to ETAG 001 Part 1 and Part 5 Option 7 for anchoring of threaded bars into non-cracked concrete.

The performance of MasterFlow 916 AN has been tested and verified by independent organizations.

### MasterFlow 916 AN Gel and Load Times

Resin Temperature	T Gel	Substrate Temperature	T Load
+5°C to +10°C	12 min	+5°C to +10°C	120 min
+10°C to +20°C	6 min	+10°C to +20°C	80 min
+20°C to +25°C	4 min	+20°C to +25°C	40 min
+25°C to +30°C	3 min	+25°C to +30°C	30 min
+30°C to +35°C	2 min	+30°C to +35°C	20 min
+35°C to +40°C	1.5 min	+35°C to +40°C	15 min
+40°C	1.5 min	+40°C	10 min

### MasterFlow 916 AN Installation Data

Anchor diameter	Drilling diameter in substrate	Min. embedment depth	Theoretical no. of fixings per 300ml cartridge*
M8	10 mm	64	108
M10	12 mm	80	66
M12	14 mm	96	43
M16	18 mm	128	23
M20	22 mm	160	13
M24	26 mm	192	8

\* Theoretical no. of fixings per cartridge is based on minimum embedment depth and 300ml cartridge volume. Note: Jobsite/contractor installations usually result in more resin being injected than the theoretical requirement resulting in a lower number of fixings per cartridge.

- A+ classification according to compulsory French VOC emissions regulation (decree 2011-321 of 23 March 2011).
- Tested according to LEED 2009 EQ c4.1, SCAQMD rule 1168 (2005).





# MasterFlow 918 AN

## Vinylester resin based anchoring grout

### MasterFlow 918 AN

MasterFlow 918 AN is a two component vinylester resin based anchoring grout for use with threaded rods only into solid substrates. MasterFlow 918 AN produces higher bond strength than polyester resin based anchoring grouts.

MasterFlow 918 AN Components A and B are packed at the correct ratio within separate compartments of the cartridge, and are automatically mixed during the extrusion within the static mixing nozzle.

Easy to use and suitable for medium and high load applications, MasterFlow 918 AN is a versatile and cost effective anchoring system.

### European Technical Assessment

MasterFlow 918 AN European Technical Assessments:

- 1) ETA according to ETAG 001 Part 1 and Part 5 Option 7 for anchoring of threaded bars into non-cracked concrete.

The performance of MasterFlow 918 AN has been tested and verified by independent organizations.

### MasterFlow 918 AN Gel and Load Times

Resin Temperature	T Gel	Substrate Temperature	T Load
+5°C to +10 °C	12 min	+5°C to +10°C	120 min
+10°C to +20 °C	6 min	+10°C to +20°C	80 min
+20°C to +25 °C	4 min	+20°C to +25°C	40 min
+25°C to +30 °C	3 min	+25°C to +30°C	30 min
+30°C to +35 °C	2 min	+30°C to +35°C	20 min
+35°C to +40 °C	1.5 min	+35°C to +40°C	15 min
+40°C	1.5 min	+40°C	10 min

### MasterFlow 918 AN Installation Data

Anchor diameter	Drilling diameter in substrate	Min. embedment depth	Theoretical no. of fixings per 410ml cartridge*
M8	10 mm	64	148
M10	12 mm	80	91
M12	14 mm	96	60
M16	18 mm	128	32
M20	22 mm	160	19
M24	26 mm	192	12

\* Theoretical no. of fixings per cartridge is based on minimum embedment depth and 410ml cartridge volume. Note: Jobsite/contractor installations usually result in more resin being injected than the theoretical requirement resulting in a lower number of fixings per cartridge.

- A+ classification according to compulsory French VOC emissions regulation (decree 2011-321 of 23 March 2011).
- Tested according to LEED 2009 EQ c4.1, SCAQMD rule 1168 (2005).





# MasterFlow 920 AN / ANS / ANW

## Epoxy acrylate (styrene-free) resin based high performance anchoring grout

### MasterFlow 920 ANS

MasterFlow 920 ANS is a two component epoxy acrylate resin based high performance anchoring grout. It is a styrene-free system with very low voc content offering very high performance in both cracked and uncracked concrete, MasterFlow 920 ANS has extended gel and cure times making it suitable for hot climates.

Summer and winter grade formulations MasterFlow 920 ANS and MasterFlow 920 ANW were developed to cater for hot and cold climates, and offer either significantly slower or faster chemical reaction time to offset climatic conditions.

MasterFlow 920 ANS Components A and B are packed at the correct ratio within separate compartments of the cartridge, and are automatically mixed during the extrusion within the static mixing nozzle.

Easy to use and suitable for high and very high load applications, MasterFlow 920 ANS is the ideal solution for anchoring requirements.

### European Technical Assessment

MasterFlow 920 AN / ANS / ANW\* European Technical Assessments:

1. ETA according to ETAG 001 Part 1 and Part 5 Option 1 for anchoring of threaded bars and rebars as anchors into cracked and non-cracked concrete.
2. ETA according to TR023 for post installed rebar connections.

With the performance tested and verified by independent organizations, selecting the MasterFlow 920 AN range for safety in critical applications becomes an easy choice.

### MasterFlow 920 ANS

Resin Temperature	T Gel	Substrate Temperature	T Load
+15°C to +20°C	15 min	+15°C to +20°C	5 hrs
+20°C to +25°C	10 min	+20°C to +25°C	145 min
+25°C to +30°C	7.5 min	+25°C to +30°C	85 min
+30°C to +35°C	5 min	+30°C to +35°C	50 min
+35°C to +40°C	3.5 min	+35°C to +40°C	40 min

### MasterFlow 920 AN / ANS / ANW Installation Data

Anchor diameter	Drilling diameter in substrate	Min. embedment depth	Theoretical no. of fixings per 380ml cartridge**
M8	10 mm	64	137
M10	12 mm	80	84
M12	14 mm	96	55
M16	18 mm	128	29
M20	22 mm	160	17
M24	26 mm	192	11

\* MasterFlow 920 ANW is not included in ETA according to TR023.

\*\* Theoretical no. of fixings per cartridge is based on minimum embedment depth and 380ml cartridge volume. Note: Jobsite/contractor installations usually result in more resin being injected than the theoretical requirement resulting in a lower number of fixings per cartridge.

- Tested according to LEED 2009 EQ c4.1, SCAQMD rule 1168 (2005).





# MasterFlow 932 AN

## Pure epoxy (1:1) resin based high performance anchoring grout

### MasterFlow 932 AN

MasterFlow 932 AN is a two component (1:1) pure epoxy resin based high performance anchoring grout for use in cracked and uncracked concrete under normal as well as seismic conditions (seismic category C1). Designed for most demanding structural applications and rebar connections, MasterFlow 932 AN offers high load-bearing capacity.

MasterFlow 932 AN Components A and B are packed at the correct ratio within separate compartments of the cartridge, and are automatically mixed during the extrusion within the static mixing nozzle.

Easy to use and suitable for very high load applications, MasterFlow 932 AN is the ideal solution for anchoring and post-installed rebar connections.

### European Technical Assessment

MasterFlow 932 AN European Technical Assessments:

1. ETA according to ETAG 001 Part 1 and Part 5 Option 1 for anchoring of threaded bars and rebars as anchors into cracked and non-cracked concrete.
2. ETA according to TR023 for post installed rebar connections.

With the performance tested and verified by independent organizations, selecting MasterFlow 932 AN for safety in critical applications becomes an easy choice.

### MasterFlow 932 AN Gel and Load Times

Resin Temperature	T Gel	Substrate Temperature	T Load
+10°C	20 min	+5°C to +10°C	24 h
+10°C to +15°C	20 min	+10°C to +15°C	12 h
+15°C to +20°C	15 min	+15°C to +20°C	8 h
+20°C to +25°C	11 min	+20°C to +25°C	7 h
+25°C to +30°C	8 min	+25°C to +30°C	6 h
+30°C to +35°C	6 min	+30°C to +35°C	5 h
+35°C to +40°C	4 min	+35°C to +40°C	4 h
+40°C	3 min	+40°C	3 h

### MasterFlow 932 AN Installation Data

Anchor diameter	Drilling diameter in substrate	Min. embedment depth	Theoretical no. of fixings per 400ml cartridge*
M10	12 mm	60	90
M12	14 mm	70	60
M16	18 mm	80	32
M20	22 mm	96	18
M24	26 mm	102	12

\* Theoretical no. of fixings per cartridge is based on minimum embedment depth and 400ml cartridge volume. Note: Jobsite/contractor installations usually result in more resin being injected than the theoretical requirement resulting in a lower number of fixings per cartridge.

- Tested according to LEED 2009 EQ c4.1, SCAQMD rule 1168 (2005).
- F240 - Tested for exposure to Fire (up to 240 minutes)







## MasterFlow 936 AN

### Pure epoxy (3:1) resin based high performance anchoring grout

#### MasterFlow 936 AN

MasterFlow 936 AN is a two component (3:1) pure epoxy resin based high performance anchoring grout for use in cracked and uncracked concrete. Designed for post-installed rebar connection applications, MasterFlow 936 AN offers a very high load-bearing capacity. The system can be installed in percussion and diamond drilled dry or wet holes.

MasterFlow 936 AN Components A and B are packed at the correct ratio within separate compartments of the cartridge, and are automatically mixed during the extrusion within the static mixing nozzle.

Easy to use and suitable for very high load applications, MasterFlow 936 AN is the ideal solution for post-installed rebar connections.

#### European Technical Assessment

MasterFlow 936 AN European Technical Assessments:

- 1) ETA according to TR023 for post installed rebar connections.

With the performance tested and verified by independent organizations, selecting MasterFlow 936 AN for safety in critical applications becomes an easy choice

#### MasterFlow 936 AN Gel and Load Times

Resin Temperature	T Gel	Substrate Temperature	T Load
+10°C	300 min	+5°C	24 h
+10°C	150 min	+5°C to +10°C	24 h
+10°C to +15°C	40 min	+10°C to +15°C	18 h
+15°C to +20°C	25 min	+15°C to +20°C	12 h
+20°C to +25°C	18 min	+20°C to +25°C	8 h
+25°C to +30°C	12 min	+25°C to +30°C	6 h
+30°C to +35°C	8 min	+30 °C to +35°C	4 h
+35°C to +40°C	6 min	+35°C to +40°C	2 h

#### MasterFlow 936 AN Installation Data

Anchor diameter	Drilling diameter in substrate	Min. embedment depth	Theoretical no. of fixings per 385ml cartridge*
M10	12 mm	80	86
M12	14 mm	96	57
M16	18 mm	128	30
M20	22 mm	160	18
M24	26 mm	192	11

\* Theoretical no. of fixings per cartridge is based on minimum embedment depth and 385ml cartridge volume. Note: Jobsite/contractor installations usually result in more resin being injected than the theoretical requirement resulting in a lower number of fixings per cartridge.

- Tested according to LEED 2009 EQ c4.1, SCAQMD rule 1168 (2005).
- F240 - Tested for exposure to Fire (up to 240 minutes)





# Installation and Hole Cleaning Accessories

## A Complete System

The range of installation and hole cleaning accessories are specially designed to give optimum performance and form an integral part of the complete MasterFlow chemical anchoring systems.



### Dispensing Tools

High quality dispensing tools help end users install MasterFlow chemical anchoring systems with ease and comfort while ensuring consistent mixing quality.



### Mixing Nozzles

Each anchoring system has been tested and approved for use with a dedicated mixing nozzle, and it is key that the supplied mixing nozzle is always used to ensure consistent product performance.



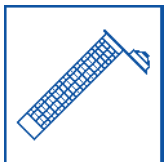
### Hole Cleaning Accessories

Incorrect cleaning of the drilled hole has a detrimental effect on the performance of anchors. Having this in mind, a combination of correct diameter and type of cleaning brush and blow pump/ compressed air should always be used.



### Injection Tools

Injection in deep holes typically presents a challenge to the installers. Piston stoppers and extension tubing are specified with the MasterFlow chemical anchoring system to aid injecting resin in deep holes and to ensure that no air voids are created during injection.



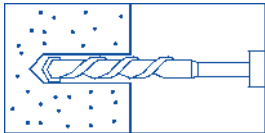
### Perforated Sleeves

Installing chemical anchors into hollow substrates requires the use of a plastic perforated sleeve. During the installation, the sleeve is inserted into the hole and completely filled with resin. Once the anchor is inserted into the sleeve, it drives the resin out through the perforations of the sleeve into the cavities of the hollow substrate. Once the resin cures, it locks the anchor from the inside.



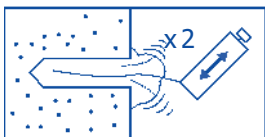
# Installation Instructions: Solid Substrates

## All MasterFlow Chemical Anchoring Systems



### Step 1

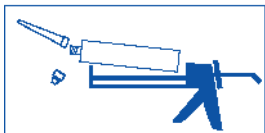
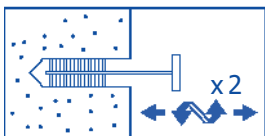
Drill the hole to the correct diameter and depth. This can be done with either a rotary percussion or rotary hammer drilling machine depending upon the substrate.



### Step 2

Thoroughly clean the hole in the following sequence using a Master Builders Solutions Brush with the required extensions and a Master Builders Solutions blow pump.

Hole Cleaning Sequence: Blow x2 -> Brush x2 -> Blow x2 -> Brush x2 -> Blow x2.



### Step 3

Select the appropriate static mixer nozzle for the installation, open the cartridge/foil and screw onto the mouth of the cartridge. Insert the cartridge into the correct applicator gun.



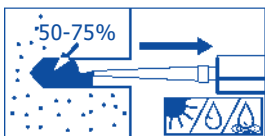
### Step 4

Extrude the first part of the cartridge to waste until an even colour has been achieved without streaking in the resin.



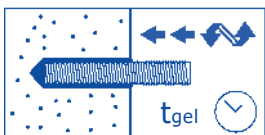
### Step 5

If necessary, cut the extension tube to the depth of the hole and push onto the end of the mixer nozzle, and (for threaded bar 16mm dia. or more) fit the correct resin stopper to the other end. Attach extension tubing and resin stopper.



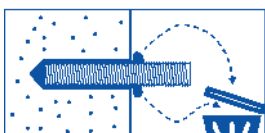
### Step 6

Insert the mixer nozzle (resin stopper / extension tube if applicable) to the bottom of the hole. Begin to extrude the resin and slowly withdraw the mixer nozzle from the hole ensuring that there are no air voids as the mixer nozzle is withdrawn. Fill the hole to approximately  $\frac{1}{2}$  to  $\frac{3}{4}$  full and remove the mixer nozzle completely.



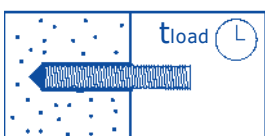
### Step 7

Insert the clean threaded bar, free from oil or other release agents, to the bottom of the hole using a back and forth twisting motion ensuring all the threads are thoroughly coated. Adjust to the correct position within the stated gelling time.



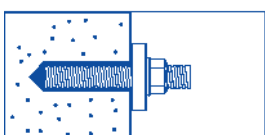
### Step 8

Any excess resin should be expelled from the hole evenly around the steel element showing that the hole is full. This excess resin should be removed from around the mouth of the hole before it sets.



### Step 9

Leave the anchor to cure. Do not disturb the anchor until the appropriate loading/curing time has elapsed depending on the substrate conditions and ambient temperature.



### Step 10

Attach the fixture and tighten the nut to the recommended torque. Do not overtighten.



# Master Builders Solutions 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

## MasterEase®

Solutions for reducing concrete viscosity

## MasterEmaco®

Solutions for concrete repair

## MasterFinish®

Solutions for formwork treatment

## MasterFlame®

Complete firestopping solutions

## 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 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

## MasterTile®

Solutions for tile fixing system

## MasterTop®

Solutions for industrial and commercial floors

## MasterWeld®

Adhesive solutions for construction

## Master X-Seed®

Advance addelerator solutions for concrete

## Ucrete®

Flooring solutions for harsh environments

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