

**MASTER<sup>®</sup>**  
**» BUILDERS**  
SOLUTIONS

# Master X-Seed <sup>®</sup>

## STE

**Unique Strength-Enhancing  
Concrete Admixture**



# Master X-Seed® STE – Strength Redefined

Master X-Seed® STE is a newly engineered strength-enhancing admixture to improve both the early and late strength development of concrete while reducing CO<sub>2</sub> emissions. The innovative solution is based on our unique C-S-H seeding technology and improves the hydration process by suspending synthetically produced crystalline calcium silicate hydrate nanoparticles in the mix. Thanks to the specially developed mechanism of action, the cement content can be reduced and replaced with limestone filler or supplementary cementitious materials (SCMs) for more sustainable concrete production. Master X-Seed® STE provides unmatched early and late strength development, setting an entirely new standard in efficiency and sustainable construction.

## Master X-Seed® STE at a glance

### Promotes Cement Hydration

Reduce the cement content of your concrete mixture without decreasing the water cementitious materials ratio.



### Strength Safety Factor

This strength-enhancing technology provides the flexibility to expand the performance space of your concrete mixture and thus improve the strength safety factor.



### Reduces Your Environmental Impact

Reducing the Portland cement content in a concrete mixture reduces the embodied energy of concrete mixtures. This has the overall effect of reducing your energy demand and the CO<sub>2</sub> emissions associated with the production of Portland cement.



### Durability

Master X-Seed® STE allows you to include higher levels of limestone filler or SCMs in a concrete mixture, improving the durability of your concrete and extending its service life.



### Increases Your Production Efficiency

The strength enhancement provided by Master X-Seed® STE permits earlier stripping and reuse of formwork, thus increasing your production efficiency and the speed of construction in both precast and ready-mixed concrete applications.



### Strength Development

This unique solution enhances both early and late strength development.



### Get Design Flexibility

Increased strength development provides you with more flexible engineering and design.



Reference project in Augusta (Italy): static restoration of the breakwater at the Port of Augusta

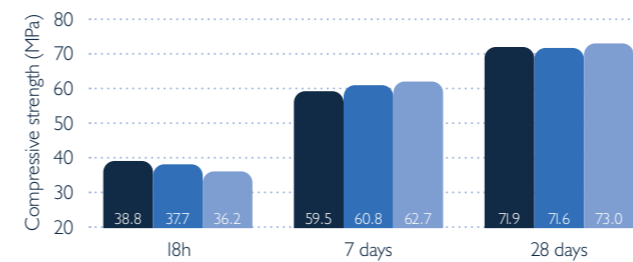
# Powerful Performance – Boost Early and Late Strength

Master X-Seed® STE can be used with all types of EN 197 cements and is fully compatible with common admixtures. The ready-to-use liquid admixture is added to the concrete during the mixing process. The additional use of high-range water reducers such as MasterCO<sub>2</sub>re™, MasterEase® or MasterGlenium® is beneficial to enhance the strength development of your concrete mix.

## Master X-Seed® STE allows mix optimization without affecting strength development

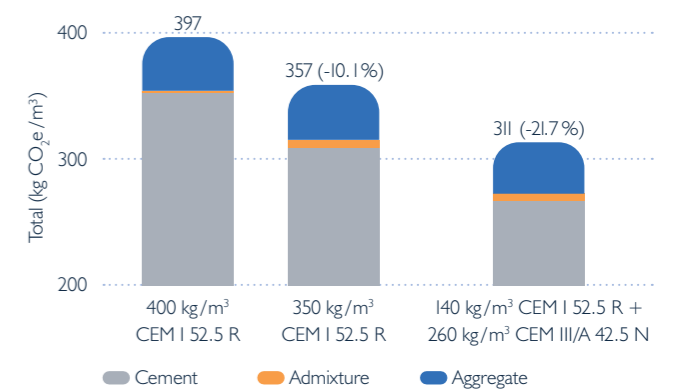
MCP Concrete (Hollow Core Slabs)

- 400 kg/m<sup>3</sup> CEM I 52.5 R; w/c ratio = 0.36
- 350 kg/m<sup>3</sup> CEM I 52.5 R; w/c ratio = 0.38; 1% Master X-Seed® STE
- 140 kg/m<sup>3</sup> CEM I 52.5 R + 260 kg/m<sup>3</sup> CEM III/A 42.5 N; w/c ratio = 0.34; 1% Master X-Seed® STE



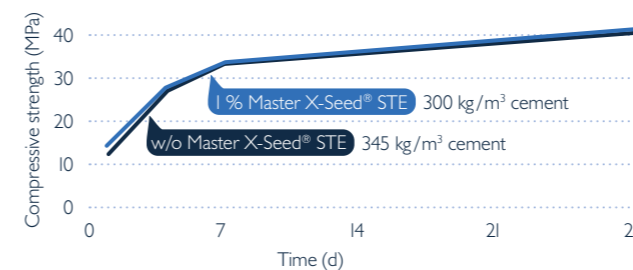
## Master X-Seed® STE reduces CO<sub>2</sub> emissions

MCP Concrete (Hollow Core Slabs)



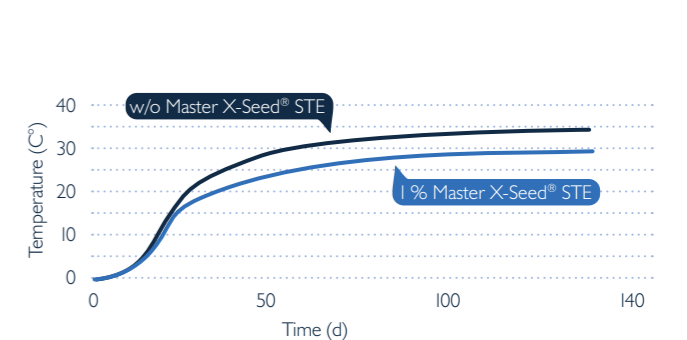
## Master X-Seed® STE enables the use of limestone filler to replace cement without affecting strength development

Ready-Mix Concrete, CEM IV/B (P) 32.5 R; w/c ratio = 0.50



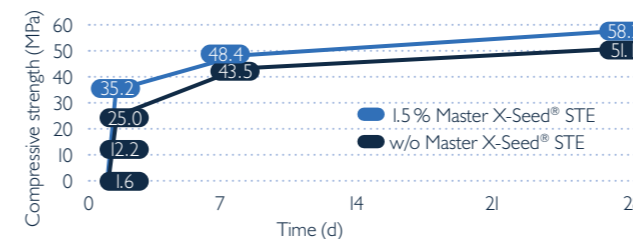
## Master X-Seed® STE lowers hydration temperatures

Ready-Mix Concrete, CEM IV/B (P) 32.5 R; w/c ratio = 0.50



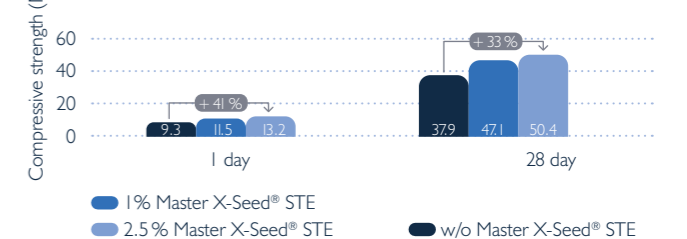
## Master X-Seed® STE increases both the early and late strength of concrete

Precast Concrete, 390 kg/m<sup>3</sup> CEM I 52.5 R; w/c ratio = 0.48



## Master X-Seed® STE boosts the strength of green cements with low CO<sub>2</sub> emissions

Ready-Mix Concrete, 330 kg/m<sup>3</sup> CEM II/C-M (S-LL) 32.5 N w/c ratio = 0.53





# Durable and Sustainable Solution for Mass Concrete Structures

Master Builders Solutions® provides efficient and sustainable solutions that enable the production of CO<sub>2</sub>-optimized concretes with high standards in terms of workability, consistency maintenance and robustness. Master X-Seed® STE maintains compressive strength development and helps to reduce the cementitious content of the concrete mix. It is suitable for large, mass concrete structures or precast elements where it is essential for the heat of hydration to be low during concrete hardening.



## Your benefits with Master X-Seed® STE:

- Improved strength development, both early (1 day) and late (28 days)
- Cement can be replaced with higher levels of limestone filler or SCMs
- Promotes sustainable construction
- Reduced hydration temperatures especially for large, mass structures due to lower cement content
- Improved concrete strength consistency even when produced with variable raw materials
- Increased strength safety factor
- Permits earlier stripping and reuse of formwork to improve production efficiency



### Contact us!

Contact your local application technician for advice on mix design and dosage of Master X-Seed® STE to improve your strength development.

Master X-Seed® STE – Unique Strength-Enhancing Concrete Admixture

# Master Builders Solutions®

As Master Builders Solutions®, we are a leading global producer of responsible solutions for the construction industry, focussed on delivering our vision: **Inspiring people to build better.**

We provide value-added technology and market-leading R&D capabilities to improve the performance of construction materials and to enable the reduction of CO<sub>2</sub> emissions in the production of concrete. The comprehensive portfolio under the Master Builders Solutions® brand encompasses concrete admixtures, cement additives, and solutions for underground construction.

We collaborate across areas of expertise and regions and draw on the experience gained from countless construction projects worldwide, leveraging global 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.

Founded in 1909, Master Builders Solutions® operates 35 production sites globally, supporting you in mastering your building challenges of today and tomorrow – for a decarbonised future.





# Master Builders Solutions® for the Construction Industry

## MasterAir

Complete solutions for air entrained concrete

## MasterCast®

Solutions for the manufactured concrete product industry

## MasterCem®

Solutions for cement manufacture

## MasterCO<sub>2</sub>re™

Solutions for low-clinker concrete

## MasterEase®

Low viscosity for high performance concrete

## MasterFinish®

Solutions for formwork treatment and surface improvement

## MasterFiber®

Comprehensive solutions for fiber reinforced concrete

## MasterGlenium®

Solutions for high performance concrete

## MasterKure®

Solutions for concrete curing

## MasterLife®

Solutions for enhanced durability

## MasterMatrix®

Advanced rheology control for concrete

## MasterPel®

Solutions for hydrophobization, anti-efflorescence and surface protection

## MasterPolyheed®

Solutions for mid-range concrete

## MasterPozzolith®

Solutions for water-reduced concrete

## MasterRheobuild®

Solutions for high strength concrete

## MasterRoc®

Solutions for underground construction and surface improvement

## MasterSet®

Solutions for set control

## MasterSphere®

Solutions for guaranteed freeze-thaw resistance

## MasterSuna®

Solutions for sand and gravel in concrete

## MasterSure®

Solutions for extraordinary workability retention

## Master X-Seed®

Advanced accelerator solutions for concrete

## Unveil the Power of MasterCO<sub>2</sub>re™: Intelligent Cluster System for Low-clinker Concrete Production

[info.master-builders-solutions.com/en/masterco2re](http://info.master-builders-solutions.com/en/masterco2re)



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