



ATLAS ENDER S

finishing coat for concrete repairs

- super smooth, for the final surface finish
- for levelling concrete and reinforced concrete surfaces
- for filling cavities and caves on prefabricated elements



Properties

ATLAS ENDER S is produced as a dry mixture of the highest quality cement binder, quartz fillers and refining additives.

It is a repair mortar of class R3 according to EN 1504-3:2006.

It has a **fine aggregate** - giving the repaired parts a smooth surface.

It has a **high compressive strength** of min. 25.0 MPa.

ATLAS ENDER S is resistant to weathering and direct exposure to de-icing salts. It is characterised by its water resistance and diffusivity. It has test-confirmed resistance to carbonation, thus contributing to an extended service life of the structure.

Purpose

Forms part of the ATLAS BETONER S concrete and reinforced concrete repair system.

Contact layer	ATLAS ADHER S
Main layer of repair	ATLAS FILER S
Finishing layer	ATLAS ENDER S

Forms an external, finishing repair layer - used for the final finishing of a previously levelled and profiled surface.

It is used for the repair of elements of a structural and finishing nature - balconies, routes, ceilings, stringers, columns, stairs, frame structures, monolithic structures, tanks, cooling towers and chimneys and other structural and non-structural concrete elements.

It can be used in prefabricated elements - for filling cavities and caves, and as a filler layer.

Technical data

Bulk density (of dry mixture)	approx. 1.4 kg/dm ³
Mixing ratio water / dry mix	0.16÷0.18 l / 1 kg 4.0÷4.5 l / 25 kg
Min. / max. mortar thickness	3 mm / 10 mm
Adhesion to the layer ATLAS FILER S	min. 1.5 MPa
Compressive strength after 28 days	min. 25.0 MPa
Temperature of preparation of the mortar and the substrate and ambient temperature during the work	from +5 °C to +25 °C
Maturation time	approx. 5 minutes
Pot life	approx. 1 hour
Open time	min. 15 minutes
Use – foot traffic	after approx. 24 hours
Application of protective coating/waterproofing with ATLAS WODER DUO	after approx. 24 hours
Full load	after about 14 days

Technical requirements

The product meets the requirements of EN 1504-3:2006.

ATLAS ENDER S (2022) Declaration of performance No. 085-3S/1/CPR EN-1504-3:2005	
Intended use: in buildings and engineering works	
Compressive strength	Class R3
Chloride ion content	$\leq 0,05\%$
Adhesion	$\geq 1,5$ MPa
Limited shrinkage/swelling (dimensional stability)	$\geq 1,5$ MPa
Modulus of elasticity	≥ 15 GPa
Thermal compatibility	$\geq 1,5$ MPa
Slip resistance	Classes I and II
Capillary absorption	≤ 0.5 kg/m h ^{20,5}
Reaction to fire	A1

Repairing substrates

Substrate preparation

The concrete substrate should be stable, load-bearing, i.e. sufficiently strong (stripping strength at least 1.5 MPa), cleaned from layers that could weaken the adhesion of the mortar. Loose and detaching layers of concrete should be removed from the surface to be repaired, and it should be cleaned of dust, dirt, lime, oil, grease, wax, oil and emulsion paint residues. Concrete substrates that are significantly damaged, soiled or chemically or biologically corroded should be subjected to special treatments such as sandblasting, shot-blasting, milling, decontamination, etc. The surface of the concrete element to be repaired with ATLAS BETONER S should be first coated with contact mortar ATLAS ADHER S, followed by a levelling layer of ATLAS FILER S mortar, according to their application technology. Immediately prior to the application of ATLAS ENDER S, the surface of ATLAS FILER S should be wetted to a dull wet state - it is not necessary to apply a contact layer.

ATLAS ENDER S can be applied directly onto the bonding layer made of ATLAS ADHER S mortar (without using ATLAS FILER S) - the "wet on wet" technology should be used.

Preparation of the mortar

Pour the material from the bag into a vessel with a measured amount of clean water (proportions given in the Technical Data) and mix with a slow speed mixer until a uniform consistency is obtained. The mortar can also be prepared in a concrete mixer. The mortar is suitable for use after approx. 5 minutes and after re-mixing. It should be used within approx. 1 hour.

Surface filling - manual application

ATLAS ENDER S should be applied over the levelling layer of ATLAS FILER S mortar, at least after 24 hours. The surface of the application should be in a matt-moist condition. The mortar needs to be spread evenly over the surface (with simultaneous firm pressing to the substrate) and then smoothed with a steel float. It is recommended to trowel the surface with a damp sponge float. Apply the mortar in a layer no thicker than 10 mm. Subsequent coats can be applied under normal conditions after a minimum of 8 hours.

Surface filling - mechanical application

Spray the mortar at an angle as close as possible to 90 degrees to the substrate, with a distance of 0.5 to 1.0 m between the nozzle outlet and the substrate. The layer applied should be compact. The thickness of the layer in one pass should not exceed 10 mm. When applying to a surface with reinforcement, the application is made from closer distances and from different sides so as not to form "caps" on the rebar. In the case of repairing defects larger than the thickness of the mortar applied in one pass, the next layer of mortar can be applied after 4 hours (a bonding layer is not required in this case).

Care of fresh mortar

After laying ATLAS ENDER S mortar, the fresh surface should be protected from rapid drying for 3-5 days before:

- rapid drying (e.g. use of water mist, wet geotextile screens),
- direct sunlight,
- draughts,
- large temperature fluctuations,
- frostbite.

The heating of the room in which the work is carried out should also be reduced. The drying time of the layer depends on its thickness and the thermo-humidity conditions in the surroundings.

Surface use

Use of the levelling layer (foot traffic) may be commenced after about 24 hours, and loading after about 7 days. Additional surface finishing with coating materials can be started after 3÷7 days, depending on their types, manufacturer's indications and thermal and humidity conditions in the surroundings.

Consumption

On average, approximately 20 kg of dry matter is used per 1 m² and per 10 mm of thickness.

Packaging

25 kg paper bags.

Safety information

Safety information is given on the product packaging and in the Safety Data Sheet, available at www.atlas.com.pl.

Storage and transport

Information on storage and transport is given on the product packaging and in the Safety Data Sheet, available at www.atlas.com.pl.

The shelf life of the product (best before use) is 12 months from the production date on the packaging.

Important additional information

In accordance with the provisions of EN 1504-10 *Products and systems for the protection and repair of concrete structures. Definitions. Requirements. Quality control and conformity assessment. Part 10: Use of products and systems on site and quality control of works* the following repair methods are distinguished:

- 3.1- manual application of repair mortar,
- 4.4 - application of the mortar layer,
- 7.1 - increase the thickness of the lagging by adding mortar,
- 7.2 - replacement of contaminated or carbonated concrete with mortar.

Clean the tools with clean water, immediately after use. Difficult to remove residues of the set mortar are washed off with ATLAS CEMENT AWAY.

The information contained in the Technical Data Sheet is a basic guideline for the use of the product and does not release you from the obligation to carry out the work in accordance with the rules of the trade and in compliance with health and safety regulations.

With the issue of this Technical Data Sheet, all previous ones are no longer valid.

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