

# UNIVERSAL MORTAR

- U02 FINE SCREED (0-0.2 mm)**
- U05 SCREED (0-0.5 mm)**
- U10 FINE MORTAR/BONDING AGENT (0-1 mm)**
- U20 UNIVERSAL MORTAR (0-2 mm)**
- U40 UNIVERSAL MORTAR (0-4 mm)**
- U80 UNIVERSAL MORTAR (0-8 mm)**
- U160 UNIVERSAL MORTAR (0-16 mm)**

## TEST CERTIFICATES AND SUPPORTING DOCUMENTS

- › Concrete replacement product for statically relevant and irrelevant repair acc. to DIN EN 1504-3
- › Product acc. to DIN EN 13813 "Cement-based screed for wearing layers" (**U20-U160**)
- › High resistance to water penetration - Verification by testing acc. to DIN EN 12390-8 (**U80**)
- › Verification of a high penetration resistance towards water-polluting substances - Testing acc. to the DAfStb Directive "Betonbau beim Umgang mit wassergefährdenden Stoffen" (Concrete construction when handling water-polluting substances) (**U80**)
- › Verification of the specific electrical resistance (**U10**)
- › Non-combustible - Verification with a test for the classification according to building material class A1 according to DIN 4102
- › Factory production control acc. to DIN EN 1504-3 and DIN EN 13813
- › Company certification acc. to DIN EN ISO 9001:2015

## PROPERTIES

- › Ready to use cement-based mortar, only requires mixing with water
- › Highly suitable for application to vertical, horizontal and overhead surfaces
- › Sprayable
- › High stability and bonding
- › Also available with plastic or steel fibres
- › Microsilica-modified
- › Reduces the ingressing of CO<sub>2</sub>
- › Complies with the requirements of building material class A1 (non-combustible) as specified under decision 2000/605/EC of the European Commission dated September 26, 2000 (published in the official journal L258)

## AREAS OF APPLICATION

- › Facades, wall, floor and ceiling surfaces
- › Concrete repair
- › Repair of holes, edges and cracks
- › Grouting
- › Channel repair
- › Embeddings, groutings

### MOISTURE CLASSES BASED ON CONCRETE CORROSION FROM ALKALI-SILICIC ACID REACTIONS

Moisture class	WO	WF	WA	WS
<b>U</b>	•	•	•	•

The aggregates in PAGEL®'s products comply with the requirements of alkali sensitivity class E1 from non-hazardous sources specified under DIN EN 12620.

### EXPOSURE CLASS ALLOCATION ACC. TO: DIN EN 206-1 / DIN 1045-2

	XO				XC			XD			XS			XF				XA			XM		
	1	2	3	4	1	2	3	1	2	3	1	2	3	1	2	3	4	1	2	3*	1	2	3
<b>U02</b>	•	••••	••	••	••••	••	••	••••	••	••	••••	••	••	••••	••	••	••	••	••	••	••	••	
<b>U05</b>	•	••••	••	••	••••	••	••	••••	••	••	••••	••	••	••••	••	••	••	••	••	••	••	••	
<b>U10</b>	•	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••	••	••	••	••	••	••	••	
<b>U20</b>	•	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••	••	••	••	••	••	••	••	
<b>U40</b>	•	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••	••	••	••	••	••	••	••	
<b>U80</b>	•	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••	••	••	••	••	••	••	••	
<b>U160</b>	•	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••••	••	••	••	••	••	••	••	••	

\* Having sulfate attack up to 600 mg/l  
With protective measures according to DIN 1045-2

## TECHNICAL DATA

TYPE		U02	U05	U10	U20	U40	U80	U160
Grain size	mm	0-0.2	0-0.5	0-1.0	0-2.0	0-4.0	0-8.0	0-16
Coating thickness	mm	0.5-3	2-6	5-20	10-30	10-40	30-80	≥ 50
Amount of water	max. %	18	16	13	13	12	12	10
Consumption approx.	kg/(m <sup>2</sup> · mm)	1.9	1.9	1.9	1.9	1.9	1.9	2.1
Processing time approx.	20 °C min	45	45	45	45	45	45	45
Fresh mortar raw density approx.	kg/m <sup>3</sup>	2,000	2,000	2,100	2,150	2,150	2,150	2,300
Compressive strength*	1 d N/mm <sup>2</sup>	≥ 15	≥ 15	≥ 20	≥ 20	≥ 25	≥ 20	≥ 35
	7 d N/mm <sup>2</sup>	≥ 35	≥ 35	≥ 50	≥ 40	≥ 50	≥ 45	≥ 50
	28 d N/mm <sup>2</sup>	≥ 45	≥ 45	≥ 60	≥ 50	≥ 65	≥ 55	≥ 60
Bending tensile strength*	1 d N/mm <sup>2</sup>	≥ 4	≥ 3	≥ 3	≥ 3	≥ 4	n. d.	n. d.
	7 d N/mm <sup>2</sup>	≥ 6	≥ 5	≥ 6	≥ 6	≥ 6	n. d.	n. d.
	28 d N/mm <sup>2</sup>	≥ 7	≥ 7	≥ 7	≥ 7	≥ 8	n. d.	n. d.
Adhesive pull strength	7 d N/mm <sup>2</sup>	≥ 1.5	≥ 1.5	≥ 2	≥ 2	≥ 2	≥ 2	≥ 2
Modulus of elasticity	28 d N/mm <sup>2</sup>	n. d.	n. d.	≥ 20,000	≥ 20,000	≥ 20,000	≥ 20,000	≥ 20,000

\* Testing of bending tensile and compressive strengths in accordance with DIN EN 196-1;

Testing of concrete compressive strength in accordance with DIN EN 12390-3

n. d. = not determined

**Note:** All fresh and solid mortars are tested at 20 °C ± 2 °C. Higher or lower temperatures result in deviating properties of fresh respectively solid mortars and test results.

Depending on the temperature, the consistency can be adapted with a slight reduction of the mixing water.

**Storage:** 12 months. Cool, dry, free from frost. Unopened in its original container.

**Delivery form:** 25-kg bag, Euro pallet 1,000 kg

**Hazard class:** Non-hazardous material, observe information on packaging.

**GISCODE:** ZP1

**Types of cement:** At the customer's request, other types of cement may be used for the product, however, this will change the technical properties.

Should you have any questions, please contact our customer service.

### PAGEL PRODUCT COMPOSITION:

Cement: acc. to DIN EN 197-1

Aggregate: acc. to DIN EN 12620

Additions: acc. to DIN EN 450, general building inspection approval (abZ),  
DIN EN 13263 (fly ash, microsilica, etc.)

## APPLICATION

### SUBSTRATE PREPARATION:

Remove loose and unsound material such as cement slurry and dirt etc. using suitable methods, e.g. shot-blasting or similar until the underlying solid grain structure has been exposed. A sufficient average tear strength ( $\geq 1.5 \text{ N/mm}^2$ , KEW  $\geq 1.0 \text{ N/mm}^2$ ) must be ensured.

#### **Prewetting:**

Prewet the concrete substrate to capillary saturation for approx. 6-24 hours.

#### **Reinforcing steel:**

Blast all rust off exposed reinforcement bars until the underlying metal has been exposed acc. to purity grade SA 2 ½ in accordance with DIN EN ISO 12944-4.

### CORROSION PROTECTION:

Apply two complete coats of **MS02** PAGEL CORROSION PROTECTION to the derusted reinforcing steel using a brush.

### MIXING:

The dry mortar is supplied ready to use and only needs to be mixed with water. Fill the specified amount of water apart from a residual amount into a clean and suitable mixing device (e.g. compulsory mixer). Add the dry mortar and mix for at least 3 minutes. Add the remaining water and mix for at least another 2 minutes until it forms a homogeneous mass.

### BONDING LAYER:

Use a brush or broom, and brush **U10** onto the prewetted, slightly moist concrete substrate until it has penetrated right down into the pores and without leaving any gaps. The subsequent mortar coating must be applied wet-on-wet. For significantly differing suction characteristics of the substrate, we recommend **EH1** PAGEL EPOXY RESIN BONDING AGENT to be used as a bonding layer.

### APPLICATION:

Apply **U** UNIVERSAL MORTAR compressively to the bonding layer before it starts setting using conventional tools, distribute and smoothen.

**Temperature range:** + 5 °C to + 35 °C

**Mixing water:** Drinking water quality

### FOLLOW-UP TREATMENT:

Fresh mortar areas must be protected from premature water evaporation (from wind, draughts, direct exposure to sun, etc.) immediately on completion of the work for a period of 3-5 days.