



**TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.**

**Technical and Test Institute for Construction Prague**

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Testing Laboratory No 1018.3  
accredited by ČIA pursuant to ČSN EN ISO/IEC 17025:2018

# TEST REPORT

**No. 020-044276**

**of initial type tests according to EN 1504-2**

- bond strength by pull-off test
- compressive strength
- thermal compatibility
- liquid water permeability
- water vapour permeability
- watertightness
- crack bridging properties

Customer: Banja Komerc Bekament d.o.o.  
Address: 34304 Banja, Arandjelovac, Serbia  
Id No: O6056091

Test sample: BK Hidrostop 2

Order No.: Z020210032

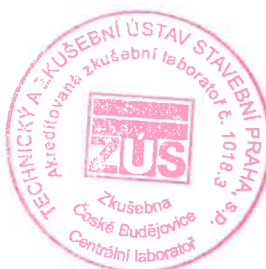
Number of pages of the Test Report incl. title page: 5

Pages of Annexes: -

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Approved by:



  
**Ing. Vilém Migl**  
manager of the testing department

Print No.: 2

Number of prints: 2

České Budějovice, 07.04.2021

Stamp of Testing Laboratory No. 1018.3

**Declaration:** 1) The test results in this Report relate only to the tested article and they do not substitute any other documents  
2) The Test Report must be copied as a whole only otherwise a written consent of the testing laboratory is needed.

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Entered in the Commercial Register maintained by Municipal Court in Prague, Section ALX, Insert 711, Comp. ID: 00015679, VAT: CZ00015679

## 1. Sample data

Evidence Number: VZ020210023  
Sample: BK Hidrostop 2  
Order: Date 14.12.2020  
Date of sample delivery: 06.01.2021  
Sampling place: Banja, Arandjelovac, Serbia  
Method of the sample preparation: 2 layers of BK Hidrostop 2, perpendicular to each other, were applied with 12 hours of time lapse between application. Total thickness: 1.5 mm  
Samples were deposited 28 days in air-conditioned climate with 23°C and 50 % rel. humidity.

Data of sampling conditions, plan and sampling procedure, if necessary, the name of the person performing the sampling are listed in the minutes of sampling, which is stored in the testing department. The results apply to the sample as received.

## 2. Test methods

Identification of the test method		Title of the test method
ČSN EN 1542	Products and systems for the protection and repair of concrete structures - Test methods - Measurement of bond strength by pull-off.	Measurement of bond strength by pull-off.
ČSN EN ISO 7783	Paints and varnishes - Determination of water-vapour transmission properties - Cup Metod.	Determination of water vapour transmission rate.
ČSN EN 1062-3	Paints and varnishes - Coating materials and coating systems for exterior masonry and concrete - Part 3: Determination of liquid water permeability.	Determination of water permeability.
ČSN EN 13687-1	Products and systems for the protection and repair of concrete structures - Test methods - Determination of thermal compatibility - Part 1: Freeze-thaw cycling with de-icing salt immersion.	Determination of thermal compatibility - freeze-thaw cycling with de-icing salt immersion.
ČSN EN 12390-8	Testing hardened concrete - Part 8: Depth of penetration of water under pressure.	Determination of depth of penetration of water under pressure.
ČSN EN 1062-7	Paints and varnishes - Coating materials and coating systems for exterior masonry and concrete - Part 7: Determination of crack bridging properties.	This test method is not included in the scope of accreditation.
ČSN EN 12190	Products and systems for the protection and repair of concrete structures - Test methods - Determination of compressive strength of repair mortar.	Determination of compressive strength

Deviations from a standard procedure or the use of non-standardized methods: were not applied.

### Related standard

ČSN EN 1504-2 Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - Part 2: Surface protection systems for concrete

## 3. Test results

The tests were carried out on: 19.01. – 30.03.2021

The tests were performed by: Marie Kubešová, Ing. Dana Pilařová

Place of testing: Testing Department České Budějovice

Date about person performing the test, testing equipment and about test conditions are listed in test minutes. All measurement and test equipment are calibrated according to valid plan of the testing department.



### 3.1 Bond strength by pull-off test (EN 1542)

Substrate: concrete (EN 1766)

	Bond strength [MPa]	Rupture typology
particular values	1.0	100 % B
	1.1	100 % B
	1.0	100 % B
	1.0	100 % B
	1.1	100 % B
average value	1.0	

### 3.2 Thermal compatibility (EN 13687-1) - Freeze-thaw cycling with de-icing salt immersion

Substrate: concrete (EN 1766)

Number of cycles: 50

1 cycle consists of:

- 2 hours immersion in a saturated solution NaCl at the temperature -15°C

- 2 hours immersion in water at 20°C

Substrate	Bond strength [MPa]		Rupture typology
	particular	average	
Reference concrete body	0.9	1.0	100 % B
	1.1		100 % B
	1.1		100 % B
	1.0		100 % B
	1.0		100 % B
Concrete body conditioned by 50 freezing cycles	0.9	0.9	100 % B
	1.0		100 % B
	0.9		100 % B
	0.9		100 % B
	0.9		100 % B
	1.0		100 % B
	0.9		100 % B
	0.9		100 % B
	0.9		100 % B
	1.0		100 % B
	1.0		100 % B

B ..... in the layer of BK Hidrostop 2

Visual evaluation: without changes

### 3.3 Water vapour permeability (EN ISO 7783)

The test on water vapour permeability was carried out on a frit plate of under conditions of 50 % RH, 23°C.

	Equivalent diffusion thickness $s_d$ [m]	Water vapour permeability V [g/(m <sup>2</sup> .24hrs) ]
particular values	1.38	14.8
	1.12	18.3
	1.35	15.2
average value	1.28	16.1

Water vapour transmission rate

**V = 16.1 g/(m<sup>2</sup>.24hrs)**

Equivalent diffusion thickness

**$s_d$  = 1.28 m**



### 3.4 Compressive strength (EN 12190)

Compressive strength [MPa]	
particular values	18.3
	15.0
	16.7
	16.9
	15.5
	16.8
average value	16.5

### 3.5 Liquid water permeability (EN 1062-3)

Substrate: Sand-lime brick

Liquid water permeability W [kg/(m <sup>2</sup> .h <sup>0.5</sup> )]	
particular values	0.46
	0.39
	0.36
average value	0.40

### 3.6 Watertightness (EN 12390-8) – 72 hours positive pressure 0.5 MPa

Depth of penetration of water into sample [mm]	
particular values	43
	38
	40
average value	40

### 3.7 Watertightness (EN 12390-8) – 7 days negative pressure 0.15 MPa

Depth of penetration of water into sample [mm]	
particular values	0
	0
	0
average value	0

### 3.8 Crack bridging properties (EN 1062-7)

The test was carried out with the method A – gradual widening the crack with concrete test specimens with dimensions of 75 mm x 50 mm x 20 mm.

The speed of widening cracks for classes A1, A2 and A3 was 0.05 mm/min, for classes A4 and A5 - 0.5 mm/min.

Class	Width of the crack	Testing temperature	
		23°C	-10°C
A1	> 100 µm	without failure	without failure
A2	> 250 µm	without failure	without failure
A3	> 500 µm	without failure	without failure
A4	> 1250 µm	without failure	without failure
A5	> 2500 µm	without failure	without failure

**END OF THE TEST REPORT**

