TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Construction Prague
Akreditovaná zkušební laboratoř, Autorizovaná osoba, Notifikovaná osoba, Oznámený subjekt, Subjekt pro technické posuzování, Certifikační orgán, Inspekční orgán / Accredited Testing Laboratory, Authorised Body, Notified Body, Technical Assessment Body, Certification Body, Inspection Body. Prosecká 811/76a, 190 00 Praha 9
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L 1018.3

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

TEST REPORT

No. 020-044277

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.
Adress:	34304 Banja, Arandjelovac, Serbia
Id No:	O6056091
Test sample:	BK Hidrostop Extra
Order No.:	Z020210032

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

Prepared by:

Ing. Dana Pilařová
specialist

Approved by:

Ing. Vilém Migl
manager of the testing department

Stamp of Testing Laboratory No. 1018.3

Print No.: 2
Number of prints: 2

České Budějovice, 07.04.2021

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.

1. Sample data

Evidence Number:	VZ020210024
Sample:	BK Hidrostop Extra
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 Extra, 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 cocrete – 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: 15.01. – 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.

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

Substrate: concrete (EN 1766)

	Bond strength [MPa]	Rupture typology
particular values	1.1 1.2 1.1 1.2 1.1	100 % B 100 % B 100 % B 100 % B 100 % B
average value	1.1	

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	1.2 1.1 1.1 1.3 1.2	1.2	100 % B 100 % B 100 % B 100 % B 100 % B
Concrete body conditioned by 50 freezing cycles	1.7 1.8 1.7 1.6 1.7 1.8 1.8 1.7 1.7 1.8	1.7	100 % B 100 % B 100 % B 100 % B 100 % B 100 % B 100 % B 100 % B 100 % B 100 % B

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

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/(m².24hrs)]
particular values	0.11 0.12 0.12	188.6 174.7 175.4
average value	0.12	179.6

Water vapour transmission rate **V = 179.6 g/(m².24hrs)**
Equivalent diffusion thickness **s_d = 0.12 m**

3.4 Compressive strength (EN 12190)

	Compressive strength [MPa]
particular values	11.1 10.8 11.0 11.1 10.9 10.9
average value	11.0

3.5 Liquid water permeability (EN 1062-3)

Substrate: Sand-lime brick

	Liquid water permeability W [kg/(m^2.h$^{0.5}$)]
particular values	0.04 0.04 0.04
average value	0.04

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

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

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.

Class	Width of the crack	Testing temperature	
		23°C	-10°C
A1	> 100 µm	without failure	without failure
A2	> 250 µm	without failure	failure (crack)
A3	> 500 µm	failure (crack)	failure (crack)

END OF THE TEST REPORT

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