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DETERMINATION OF THERMAL CONDUCTIVITY OF BIBER BASED  
INSULATION BOARDS AQUADESK 20 AND AQUADESK 23  
(ACCORDING TO EN 12667)

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Client:

**RETEX a.s.**  
**U nádraží 894**  
**672 01 Moravský Krumlov,**  
**Czech Republic**  
**VAT CZ46346431**

Responsible employer:

**doc. Ing. Jiří Zach, Ph.D.**

In Brno 21.12.2018

## 1. Test methods

- ČSN 72 7012-3 Determination of Steady State Thermal Conductivity of Materials. Plate Methods. Heat Flow Meter Method
- EN 12667 Thermal performance of building materials and products. Determination of thermal resistance by means of guarded hot plate and heat flow meter methods. Products of high and medium thermal resistance
- ISO 8301 Thermal insulation — Determination of steady-state thermal resistance and related properties — Heat flow meter apparatus

## 2. Testing equipments

Measurement equipment Lasercomp FOX 630, Holometrix Lambda 2300, caliper, scales, dryer, climate chamber.

The testing equipment has been duly verified or calibrated.

## 3. Test samples

According to order of RETEX company, samples at testing labs were delivered:

- Aquadesk 20,
- Aquadesk 30.

Samples were delivered in the format 200x200 mm in the amount of 3 test samples from each type of insulator.

## 4. Information about testing

Further the specimens were stored in laboratory conditions upon set conditions. Prior to testing the specimens were conditioned at temperature  $23 \pm 1$  °C and humidity  $50 \pm 2\%$ . The testing laboratory marked the specimens as follows: A1-A3 and B1-B3.

The measurements were further performed on test specimens, which were immersed in water for 24 hours and then left in a vertical position on a grate for 10 minutes to allow excess water to drip off, and then the thermal conductivity was determined on the soaked specimens.

The thermal conductivity value coefficient setting test using the plate method with specimens with int. no. A1-A3 and B1-B3 was carried out by mentioned staff according to the stated EN 12667 a ČSN 72 7012 (ISO 8301). Measurement was made with mean temperature  $+10$ °C and temperature gradient  $10$ °C.

## 5. Test results

Results of determination of thermal conductivity of test samples are in table number 1 and 2.

Tab. 1: Results of determination of thermal conductivity of samples by plate method

**Table 1: Thermal conductivity od samples A1-A3 (Aquadesk 20)**

State	Sample	d	a	b	Thermal conductivity [W/(m.K)]			
					1	2	3	Průměr
		mm	mm	mm				
DRY	A1	23,97	200	201	0,0383	0,0383	0,0383	0,0383
DRY	A2	19,99	200	200	0,0385	0,0385	0,0385	0,0385
DRY	A3	20,19	200	200	0,0382	0,0382	0,0382	0,0381
Average		<b>21,38</b>						<b>0,0383</b>
WET	A1	20,98	200	200	0,1427	0,1419	0,1415	<b>0,1420</b>

**Table 1: Thermal conductivity od samples B1-B3 (Aquadesk 23)**

State	Sample	d	a	b	Thermal conductivity [W/(m.K)]			
					1	2	3	Průměr
		mm	mm	mm				
DRY	B1	33,09	200	201	0,0381	0,0381	0,0381	0,0381
DRY	B2	32,99	200	200	0,0386	0,0385	0,0385	0,0385
DRY	B3	34,99	200	200	0,0383	0,0382	0,0383	0,0383
Average		33,69						<b>0,0383</b>
WET	B1	32,95	200	200	0,1430	0,1401	0,1392	<b>0,1409</b>

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