

## Testing of Joramark BOX300 according to ETAG 022 Annex F

**Requested by** Joramark Oy  
Jouni Rautiainen  
Satulasepänkatu 6-8  
70700 Kuopio  
FINLAND  
info@joramark.fi

**Order ref.** E-mail from Jouni Rautiainen 4 December 2018

**Contact person** **Eurofins Expert Services Oy**  
Ville Matveinen  
Kemistintie 3  
FI-02151 Espoo  
Finland  
VilleMatveinen@eurofins.fi

**Assignment** Testing of Joramark BOX300 according to ETAG 022 Annex F

**Sample details** The customer delivered Joramark products to Eurofins Expert Services Ltd on January 23 2019 and 19 March 2019. The delivered products are presented on table 1.

*Table 1. Samples for testing*

Product	Quantity	Marking
Joramark Front plate	4 pcs	70101
Joramark Edge plate	4 pcs	70102
Joramark BOX300	4 pcs	-
Metal sheet screw	40 pcs	-
Casco Aquastop	5 L	3003508438-001 Prod. 4.10.2018
Casco Primer	3 liter	3003594457-001 Prod. 12.11.2018
Casco Waterproofing tape	100 mm x 25 m	494538
Casco Wetstop KL-tape	110 mm x 30 m	517446

**Testing period** 28.3-29.4.2019

**Methods**

Four gypsum boards size of 540x600 mm were primed with Casco Primer. Testing was done for the front plate that was attached to the BOX300 according to installation instructions. The BOX300-front plate was attached in the holes in the centre of the test boards.

The BOX300 was installed to the same level with gypsum board. The edges of the BOX300 were grinded with sandpaper, cleaned with acetone and sealed with Casco waterproofing reinforcement tapes (another box with Casco Waterproofing tape and another with Casco Wetstop KL-tape). Two layers of Casco waterproofing membrane were applied. The membrane was applied so that min. 30 mm of front plate surface was covered at each side.

The water tightness of the test specimens were tested according to ETAG 022 annex F "Water tightness around penetrations and other details in wet room walls with flexible substrate". The test specimens were subjected to 3000 water spray cycles:

- Hot water spray ( $60\pm 3^{\circ}\text{C}$ ) for 60 s
- Pause for 60 s
- Cold water spray ( $10\pm 3^{\circ}\text{C}$ ) for 60 s
- Pause for 60 s

After the test, the membranes and the reinforcement tapes were opened. The test specimens were examined visually for leakage using methylene blue -powder mixture. The moisture contents of the gypsum boards were measured after the test by weighing.

Test specimens were prepared by Eurofins Expert Services Oy Senior Technician Juha Rosnell.

**Results**

The test results are presented in tables 2-3. Pictures of test specimens after testing are shown in appendix 1.

*Table 2. The test results of ETAG 022 Annex F*

Product/Structure	Wet consumption	Result
BOX300 + Casco Waterproofing tape	<u>Specimen 1</u> Primer <b>81</b> g/m <sup>2</sup> Waterproofing <b>1863</b> g/m <sup>2</sup>	ETAG 022 Annex F <b>Watertight</b>
	<u>Specimen 2</u> Primer <b>81</b> g/m <sup>2</sup> Waterproofing <b>1884</b> g/m <sup>2</sup>	ETAG 022 Annex F <b>Watertight</b>
BOX300 + Casco Wetstop KL-tape	<u>Specimen 3</u> Primer <b>91</b> g/m <sup>2</sup> Waterproofing <b>1991</b> g/m <sup>2</sup>	ETAG 022 Annex F <b>Watertight</b>
	<u>Specimen 4</u> Primer <b>89</b> g/m <sup>2</sup> Waterproofing <b>1931</b> g/m <sup>2</sup>	ETAG 022 Annex F <b>Watertight</b>

*Table 3. Moisture content after the test*

Specimen no.	Under the edge of the reinforcement tape	Under the waterproofing membrane
1	0,1 %	0,1 %
2	0,3 %	0,3 %
3	0,2 %	0,2 %
4	0,4 %	0,4 %

**Conclusions**

The BOX300 was watertight with two different Casco waterproofing reinforcement tapes.

**Espoo, 13.5.2019 (updated 29.4.2020)**

*Ville Matveinen*

*Expert*

Appendices Appendix 1. Preparation of test specimens

Distribution Customer, electronically approved



Picture 1-2. Preparation of test specimens WetStop KL-tape.

Edges of the BOX 300 front plate (test done for the whole BOX 300) were first grinded with sandpaper, then cleaned with acetone. Then the Casco primer is applied to the surface, then Casco Aquastop to attach Casco WetStop KL tape. After attaching Casco tape (pictures above) the test sample is applied by two layers of Casco Aquastop.



*Picture 3-4. Preparation of test specimens Casco Waterproofing tape*

Edges of the BOX 300 front plate (test done for the whole BOX 300) were first grinded with sandpaper, then cleaned with acetone. Then the Casco primer is applied to the surface, then Casco Aquastop to attach Casco Waterproofing tape. After attaching Casco tape (pictures above) the test sample is applied by two layers of Casco Aquastop.