Evidence of Performance

Air permeability, Watertightness, Resistance to wind load

Test Report
No. 20-004301-PR01
(PB+KB-B01-02-en-01)

Client	ALUMINCO S.A. Megali Rahi 32011 Inofita Viotias Greece
Product	Stick construction
Designation	System designation: EW50
Material	Aluminium
Overall dimensions (WxH)	3,000 mm x 3,600 mm
Special features	Material compatibility must be taken into account. Material durability must be taken into account. Please refer to the photos, drawings and instructions for installation and assembly. Use of non series-compliant hardware

Results

Air permeability
EN 12152:2002-02
Class AE

Watertightness - static
EN 12154:1999-12
Class RE_{1200}

Resistance to wind load
EN 13116:2001-07

Design load	Safety load
+ 1.6 kN/m²	+ 2.4 kN/m²
- 1.6 kN/m²	- 2.4 kN/m²

ift Rosenheim
02.02.2021

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Basis

EN 13830:2003 - 09

Test standard/s:
EN 12152:2002 - 02
EN 12153:2000 - 06
EN 13116:2001 - 07
Correspond/s to the national standard/s (e.g. DIN EN)

Representation

Instructions for use

The results obtained can be used by the manufacturer for preparing the Declaration of Performance in accordance with the Construction Products Regulation 305/2011/EU. The provisions of the applicable product standard have to be observed.

Validity

The data and results refer solely to the tested and described specimen. Classification remains valid as long as the product and the above basis remain unchanged. The results can be extrapolated under the manufacturer's own liability subject to observance of the relevant specifications set out by the applicable product standard. This test/evaluation does not allow any statement to be made on any further characteristics regarding performance and quality of the construction presented, in particular the effects of weathering and ageing were not taken into account.

Notes on publication

The **ift**-Guidance Sheet "Advertising with ift test documents" applies. The document may only be published in full.

The report contains a total of 41 pages.

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1 Object

1.1 Description of test specimen

The description of the specimen to be tested serves to identify, in conformity with the standards, the product type, for which the values determined will apply. All *minimum details provided by the client will be checked for plausibility by ift, any deviations observed and/or additional findings will be documented.

* Mindestangaben
* minimum details

Alle Maßangaben in mm
All dimensions in mm

Nicht Zutreffendes bitte löschen.
Please delete non-appropriate.

Wareneingang-Nr.: 52239-001
ID of goods received :

ift Mitarbeiter: Moustakidis
ift staff member :

Eigenschaft Characteristic	**Angaben des Auftraggebers** Information provided by client
Produkt Product	*Stick construction
Hersteller Manufacturer	*ALUMINCO S.A.
Systemgeber System supplier	*ALUMINCO S.A.
System System	*EW50
Material Material	*Aluminium
Außenmaß (B x H) Overall dimensions (W x H)	*3,000 mm x 3,600 mm
Feldrastermaße (B x H) Field grid dimensions (W x H)	*933 mm x 600 mm 933 mm x 2,850 mm 933 mm x 1,000 mm 933 mm x 1,800 mm 915 mm x 1,780 mm
Fassadenbefestigung Fixing method of facade	*See processing drawing(s) See pictures
Profile Profiles	*See processing drawing(s)
Profilwerkstoff* Profile material[1]	Aluminium
Pfostenprofile (Art.-Nr.) Mullion profiles (item no.)	*PEW50-509
Riegelprofile (Art.-Nr.) Transom profiles (item no.)	*PEW50-516
Zusatzprofile (Art.-Nr.) Supplementary profiles (item no.)	*EEW50-481, EEW50-482
Eckverbindung Corner joint	*See processing drawing(s) See pictures
Andruckleiste vertikal (Art.-Nr.) Pressure plate vertical (item no.)	*PEW50-922

* falls abweichend zum Material
if different to material

Eigenschaft **Characteristic**	**Angaben des Auftraggebers** **Information provided by client**
Andruckleiste horizontal (Art.-Nr.) Pressure plate horizontal (item no.)	*PEW50-922
Befestigung Fixing method	*Vertical continuous, horizontal profiles butt-jointed to vertical profiles, torque rate: 6 Nm screw distance: in-between 250 mm, from corner 30 mm
Deckleiste vertikal (Art.-Nr.) Cover plate vertical (item no.)	*PEW50-603
Deckleiste horizontal (Art.-Nr.) Cover plate horizontal (item no.)	*PEW50-601
Befestigung Fixing method	*Clamped
Ausfachung Typ 1 **Infill panel type 1**	*Fixed light
Typ Type	*Insulating glass unit (IGU)
Gesamtglasdicke Total glass thickness	30 mm
Glasaufbau (von außen nach innen) Glass configuration (from outside to inside)	*6 mm Float \ 18 mm Cavity \ 6 mm Float
Einbau der Füllungen **Installation of infill panels**	*See drawing(s) of test specimen
Hersteller / Lieferant Manufacturer / supplier	Information deposited at ift Rosenheim
Material Material	EPDM
Verglasungsdichtung außen (Art.-Nr.) External glazing gasket (item no.)	*EEW50-460
Verglasungsdichtung innen (Art.-Nr.) Internal glazing gasket (item no.)	*EEW50-454 (on mullion profile) EEW50-463 (on transom profile)
Eckausbildung Corner design	*See processing drawing(s) See pictures
Belüftung / Entwässerung Ventilation / drainage	*See processing drawing(s)
Ausfachung Typ 2 (falls zutreffend) **Infill panel type 2 (if appropriate)**	*Insert unit
Typ Type	Arm-balancing window
Profilsystem Profile system	EW50
Öffnungsart / Öffnungsrichtung	Drop down top-hung

Eigenschaft **Characteristic**	**Angaben des Auftraggebers** **Information provided by client**
Type of opening / opening directions	
Rahmenmaterial Frame material	Aluminium profiles with thermal break
Blendrahmenaußenmaß (B x H) Overall frame dimensions (W x H)	935 mm x 1,800 mm
Flügelaußenmaß (B x H) Overall casement dimensions (W x H)	905 mm x 1,770 mm
Blendrahmen **Frame member**	See drawing(s) of test specimen See pictures
Artikelnummer Item no.	PEW50-811 EEW50-484
Rahmenverbindung Frame joint	Mitred, bonded, nailed and sealed using pourable sealant
Flügelrahmen **Casement member**	See drawings of test specimen See pictures
Artikelnummer Item no:	PEW50-821
Rahmenverbindung Frame joint	Mitred, bonded, compressed and sealed using pourable sealant
Bezeichnung / Art.-Nr. Designation / item no.	PEW50-919, PEW50-912
Rahmenverbindung Frame joint	Screwed and sealed with elastic sealant
Falzausbildung **Rebate design**	
Falzentwässerung Rebate drainage	*None
Druckausgleich Pressure equiaisation	*Without pressure equalisation
Falzdichtungen **Rebate seals**	
Hersteller / Lieferant Manufacturer / supplier	Information deposited at ift Rosenheim
Material Material	EPDM
Falzdichtung außen (Art.-Nr.) External rebate seal (item no.)	*EEW50-455
Eckausbildung Corner design	*Mitred, bonded and sealed using pourable sealant
Falzdichtung mittig (Art.-Nr.) Centre rebate seal (item no.)	*EEW50-456
Eckausbildung Corner design	*Mitred, bonded and sealed using pourable sealant
Falzdichtung innen (Art.-Nr.) Internal rebate seal (item no.)	*EEW50-456

Eigenschaft **Characteristic**	**Angaben des Auftraggebers** **Information provided by client**
Eckausbildung Corner design	*Mitred, bonded and sealed using pourable sealant
Einbau der Verglasung **Installation of glazing**	*See drawing(s) of test specimen See processing drawing(s) See pictures
Hersteller / Lieferant Manufacturer / supplier	Information deposited at ift Rosenheim
Material Material	*EPDM
Verglasungsdichtung innen (Art.-Nr.) Internal glazing gasket (item no.)	*US530-5PRM
Eckausbildung Corner design	*Butt-jointed, bonded and sealed using pourable sealant
Belüftung / Entwässerung Ventilation / drainage	See processing drawing(s)
Beschlag **Hardware**	*Top-hung hardware
Hersteller Manufacturer	*GIESSE
Bezeichnung / Typ / Art.-Nr. Designation / type / item no.	*EEW50-856
Lager Bearings	*Tilt mechanism pivot
Anzahl Verriegelungen Number of locking devices	*8
Oben At top	2
Bandseitig On hinge side	4 (2 per side)
Schließseitig On lock side	2
Max. Verriegelungsab-stand Max. locking distance	350 mm
Stellung der Verriegelung Position of locking devices	Locking devices under partly maximum hold

2 Procedure

2.1 Sampling

The below sampling data were provided to the ift:

Sampling by:	ALUMINCO S.A., 32011 Inofita Viotias (Greece)
Verification:	ift Rosenheim did not receive a sampling report.
Delivered on:	30.11.2020
ift-Pk-Number:	20-004301-PK01 / WE: 52239-001

2.2 Testing

Date of manufacture:	Unknown
Assembly / company:	ALUMINCO A.E.
Test dates:	30.11.2020 - 02.12.2020
Test equipment used:	EPst/026064 - Window and facade test rig–
The test was witnessed / partly witnessed by:	
Bikram Rupakheti	ALUMINCO S.A.
Pantelis Eletheriou	ALUMINCO S.A.
Test engineer/s:	
Dipl.-Ing., M.Sc. D. Moustakidis	ift Rosenheim GmbH
Alexandros Simeonidis	ift Rosenheim GmbH

2.3 Test sequence according to product standard EN 13830 – Clause 5.2.3

No.	Type of test	Test standards	Maximum load
1	Air permeability		
	Positive wind pressure	EN 12153	+ 1200 Pa
	Negative pressure		- 1200 Pa
2	Watertightness under static pressure	EN 12155	+ 1200 Pa
3	Deflection under wind load	EN 12179	+ 1,600 Pa
			- 1,600 Pa
4	Repeat test of air permeability		
	Positive wind pressure	EN 12153	+ 1200 Pa
	Negative wind pressure		- 1200Pa
5	Repeat test of watertightness under static pressure	EN 12155	+ 1200 Pa
6	Resistance to wind load – Safety test	EN 12179	+ 2400 Pa
			- 2400 Pa
7	Disassembly and inspection		

Note + … positive wind pressure (external positive wind pressure on facade)
- … negative wind pressure (external negative wind pressure on facade)

2.4 Basic documents*) referring to test methods

EN 13830:2003-09 Curtain walling – Product standard

Testing

EN 12153:2000-06
Curtain walling - Air permeability - Test method
EN 12155:2000-06
Curtain walling - Watertightness - Laboratory test under static pressure
EN 12179:2000-06
Curtain walling - Resistance to wind load - Test method
EN 1026:2016-03
Windows and doors - Air permeability - Test method
EN 1027:2016-03
Windows and doors - Watertightness - Test method

Classification / Evaluation

EN 12152:2002-02
Curtain walling – Air permeability – Performance requirements and classification
EN 12154:1999-12
Curtain walling – Watertightness – Performance requirements and classification
EN 13116:2001-07
Curtain walling - Resistance to wind load – Performance requirements

*) and the equivalent national versions, e.g. DIN EN

Deviation

There were no deviations from the test method.

3 Comments on test - Brief description of procedure

3.1 Air permeability

Prior to testing, the test rig system with mounted test sample were filled with artificial fog and checked under pressure to eliminate all leakages of the test rig. The leakages of the test rig system were sealed.

Thereafter the artificial fog was blown out of the test rig, three pressure pulses were applied to the facade and released as set out by the standard, followed by air permeability measurements.

Air permeability was tested at up to a test pressure differential of ± 1200 Pa. The measured values are listed in test record. The values were obtained by the difference method, where the measured air permeability obtained from zero measurement is deducted from the air permeability of the facade.

3.2 Watertightness under static pressure

Watertightness under static pressure was tested at a water flow rate of 1 l/(m² min) at up to a test pressure differential of + 1200 Pa.

No water penetration through the facade construction was detected.

3.3 Deflection under wind load

Deflections were measured at positive wind pressure at up to + 1,600 Pa and negative wind pressure at up to - 1,600 Pa. As per EN 13116, the frontal deflection of the profiles between the structural support points must be determined. Layout and description of the measurement points are given in illustration 1.

Detailed result contains the deformations obtained. Furthermore, the effective deflections are presented. As per EN 1991-1-4 the effective deflections were below l/200 and below 15 mm, respectively, when exposed to the specified design load of + 1.6 kN/m² and - 1.6 kN/m².

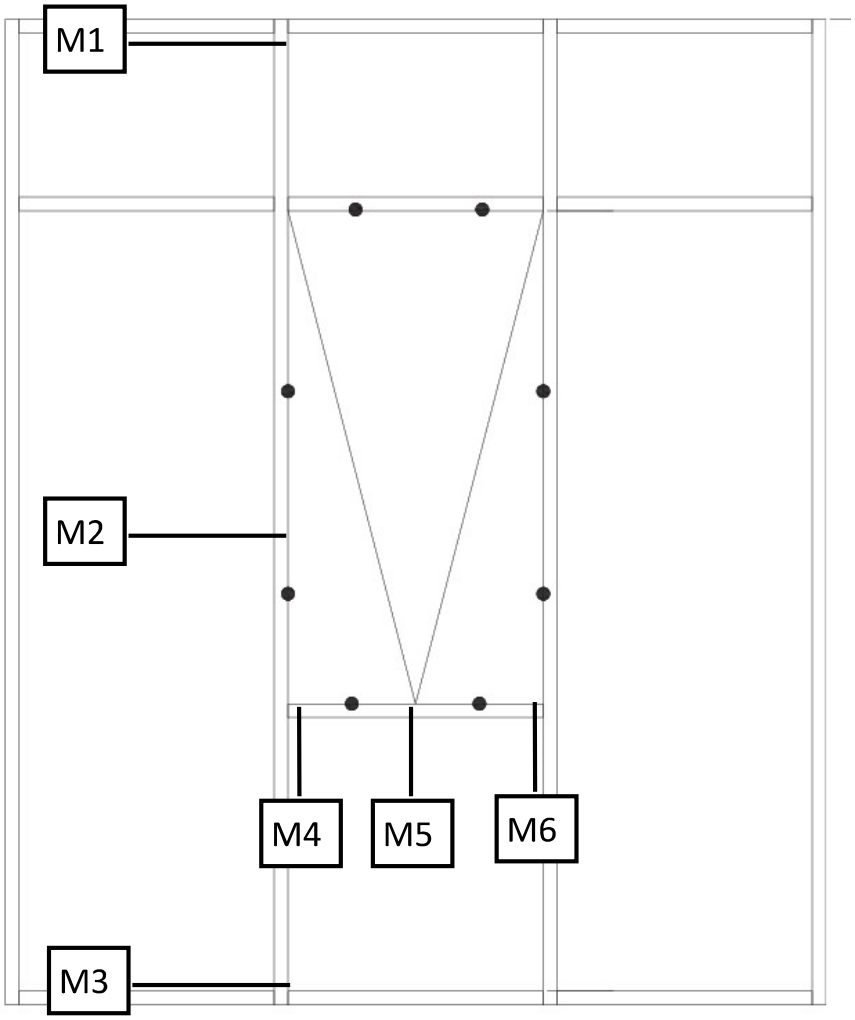

Illustration 1 Layout of measurement points

Measurement point 1: Mullion at top
Measurement point 2: Centre of mullion
Measurement point 3: Mullion at bottom
Measurement point 4: Transom left
Measurement point 5: Centre of transom
Measurement point 6: Transom right

3.4 Repeat test of air permeability

The result of the first test was confirmed. The values obtained at a test pressure differential of ± 1200 Pa were below the maximum permitted air permeability of 0.3 m³/(h m²) and 0.1 m³/(h m) related to the overall area and related to fixed joint length, respectively.

3.5 Repeat test of watertightness

Watertightness under static pressure was tested at a water flow rate of 2 l/(m² min) at up to a test pressure differential of + 1200 Pa.

No water penetration through the facade construction was detected.

3.6 Safety test

The test element was exposed to positive / negative wind loads applying 150% of the design loads of + 2.4 kN/m² and - 2.4 kN/m² for a period of 15 sec. each as set out by EN 1991-1-4.

No breakages or any other visible changes were detected.

3.7 Disassembly and inspection

After completion of the test, various parts were disassembled to compare the significant features of the construction with the test specimen description, as well as with the system documents provided to the test date. The processing does not match the submitted processing drawings.

Result:

No water penetration through the facade construction was detected.