

Evidence of Performance

Calculation of thermal transmittance



Test Report
No. 12-003023-PR03
(PB-A01-06-en-01)

Client Arbor Ahsap Yapı Elemanları
Atatürk bulvarı Köstemir yolu
No:74 Silivri
Istanbul
Turkey

Basis *)
EN 14351-1:2006+A1:2010
EN ISO 10077-1:2006-09
Test Report 12-003023-PR02
(PB-K20-06-en-01)

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

Product Single tilt and turn window wood-metal

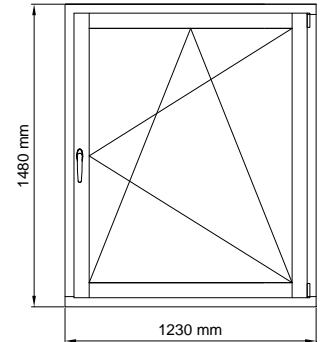
Designation MINIMA 68m

Performance-relevant product details

Manufacturer Selectron Elektrokimya San.Ve tic. Ltd şti. (Arbor Wood Windows) Silivri-İST; **Width** in mm 1,230; **Height** in mm 1,480; **Opening direction** inward; **casement-frame**; **Material** soft wood (500 kg/m³) / aluminium; **View width W** in mm 118; **Sealing system** 1 x middle gasket, 1 x overlap gasket; **insulating glass unit**; **Thermal transmittance U_g** in W/(m²K) 0,6 (as specified by the client); **Configuration** in mm 4/16/4/16/4; **Edge cover depth** in mm 14; **Coating** Low E; **thermal improved spacer**; **Joint length-related thermal transmittance** in W/mK $\Psi = 0,06$ W/mK (according to EN ISO 10077-1 as specified by the client)

Special features -

Representation



Instruction for use

The results obtained can be used by the manufacturer as the basis for the manufacturer ITT test summary. Observe the specifications set out by the applicable product standard.

Validity

The data and results refer solely to the tested and described test specimen.

This test does not allow any statement to be made on further characteristics regarding performance and quality of the construction presented.

Notes on publication

The ift-Guidance Sheet "Advertising with ift test documents" applies. The cover sheet can be used as an abstract.

Contents

The report contains a total of 5 und Anlage (1 Seite)pages.

Results

Calculation of thermal transmittance according to EN ISO 10077-1:2006-09



$$U_W = 0.94 \text{ W/(m}^2\text{K)}$$

ift Rosenheim
20.02.2013

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Test Report . 12-003023-PR03 (PB-A01-06-en-01) dated 20. Februar 2013
Client: Arbor Ahsap Yapi Elemanlari, Istanbul (Turkey)

1 Object

1.1 Description of test specimen

Single tilt and turn window wood-metal

Manufacturer	Selectron Elektrokimya San.Ve tic. Ltd Őti. (Arbor Wood Windows) Silivri-İST
Type of opening	MINIMA 68m
Opening directions	inward
Width in mm	1,230
Height in mm	1,480

Casement-frame

Material	soft wood (500 kg/m ³) / Aluminium
View width in mm	118
Sealing system	1 x middle gasket 1 x overlap gasket

Casement member

Profile section, width in mm	74
Profile section, thickness in mm	68

Frame member

Profile section, width in mm	70
Profile section, thickness in mm	68

Facing profile

Designation	Uniform LA 882
Profile section, width in mm	107
Profile section, thickness in mm	10

Glazing bead external

Designation	Uniform LP 212
Material	Polyamide 6.6 with 25% glass fibre reinforced
Profile section, width in mm	26
Profile section, thickness in mm	23

Insulating glass unit

Thermal transmittance in W/m ² K	$U_g = 0,6$ (specified by the client)
Visible size (W x H) in mm	994 x 1,244
Thickness in mm	44
Configuration in mm	4/16/4/16/4
Edge cover in mm	14
Coating	Low E



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Spacer

Material	thermal improved spacer
Joint length-related thermal transmittance in W/mK	$\Psi = 0,06$ W/mK (according to EN ISO 10077-1 as specified by the client)

The description is based on information provided by the client and inspection of the test specimen at **ift**. (item designations / numbers as well as material specifications were provided by the client unless stated „*ift-checked*“.)

Test specimen representations are documented in the Annex “Representation of product/test specimen”.
The design details were examined solely on the basis of the characteristics / performance to be classified;
The drawings are based on unchanged documentation provided by the client unless stated otherwise.

1.2 Sampling

The below sampling data were provided to the ift:

Sampling by: Arbor Ahsap Yapi Elemanlari Istanbul (Turkey)
Dated : 06.02.2013
Verification: A sampling report has not been provided to the ift.
ift-sp-Number: 12-003023-PK05

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Client: Arbor Ahsap Yapi Elemanlari, Istanbul (Turkeyi)

2 Procedure

2.1 Basis *) referring to methods

EN 14351-1:2006+A1:2010

Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics

EN ISO 10077-1:2006-09

Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 1 - Simplified method

ift-Test Report 12-003023-PR02 (PB-K20-06-de-01)

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

2.2 Brief description of procedrue

Calculation of thermal transmittance U_w

The thermal transmittance of a window is determined by adding together the products of the individual areas/lengths and their associated thermal transmittance/joint length-related thermal transmittances, and dividing the total by the overall area of the window.

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3 Detailed results

Calculation of thermal transmittance

Project No.	12-003023-PR03	Task No.	12-003023
Basis of test	EN ISO 10077-1:2006-09 Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part 1 - Simplified method		
Used test equipment	Sim/020841 - ift calculation program		
Test specimen	Single-leaf wood-metal window System "MINIMA 68m"		
Test specimen No.	12-003023-PK03		
Date of test	12.02.2013		
Testing personal in charge	Sebastian Wassermann		
Test engineer	Sebastian Wassermann		

Information on test configuration / Test method

Test method There are no deviations to the test method according standards/basis

Determination of thermal transmittance for windows U_w

Thermal transmittance of a window is based on:

$$U_w = \frac{A_f \cdot U_f + A_g \cdot U_g + l_g \cdot \Psi_g}{A_w}$$

Definition	Einheit
A_f Area of frame profile	m ²
U_f Thermal transmittance of frame profile	W/(m ² K)
l_g Length of glass edge	m
Ψ_g Joint length-related thermal transmittance of glass edge	W/(mK)
A_g Area of glazing	m ²
U_g Thermal transmittance of glazing	W/(m ² K)
b_w Width of window	m
h_w Height of window	m
A_w Window area	m ²
l_w Window circumference	m

Dimensions	b_w	h_w	A_w	Frame part
	1,230	1,480	1,820	32%

Profile combinations	Frame		Source
	A_f	U_f	
Casement-frame top	0,117	1,2	ift test report 12-003023-PR02 (PB-K20-06-en-01)
Casement-frame lateral	0,349	1,2	ift test report 12-003023-PR02 (PB-K20-06-en-01)
Casement-frame bottom	0,117	1,2	ift test report 12-003023-PR02 (PB-K20-06-en-01)

Glazing	l_g	Ψ_g	A_g	U_g	Source
Standard spacer	4,476	0,06			EN ISO 10077-1 as specified by the client
Trible IGU 4/16/4/16/4			1,237	0,6	as specified by the client

Test result

Calculated thermal transmittance

$$U_w = 0,94 \text{ W/(m}^2\text{K)}$$

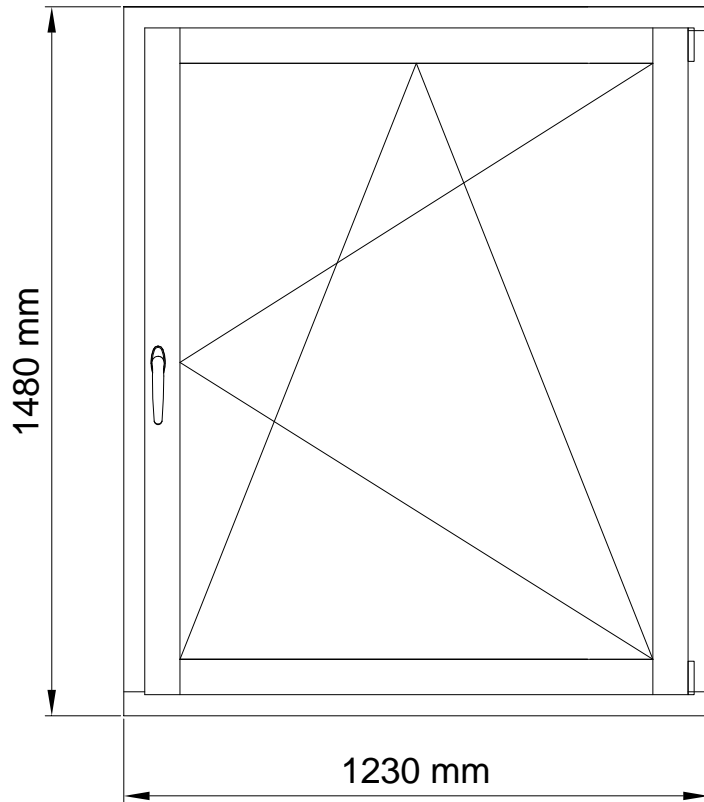


Fig. 1: View of window

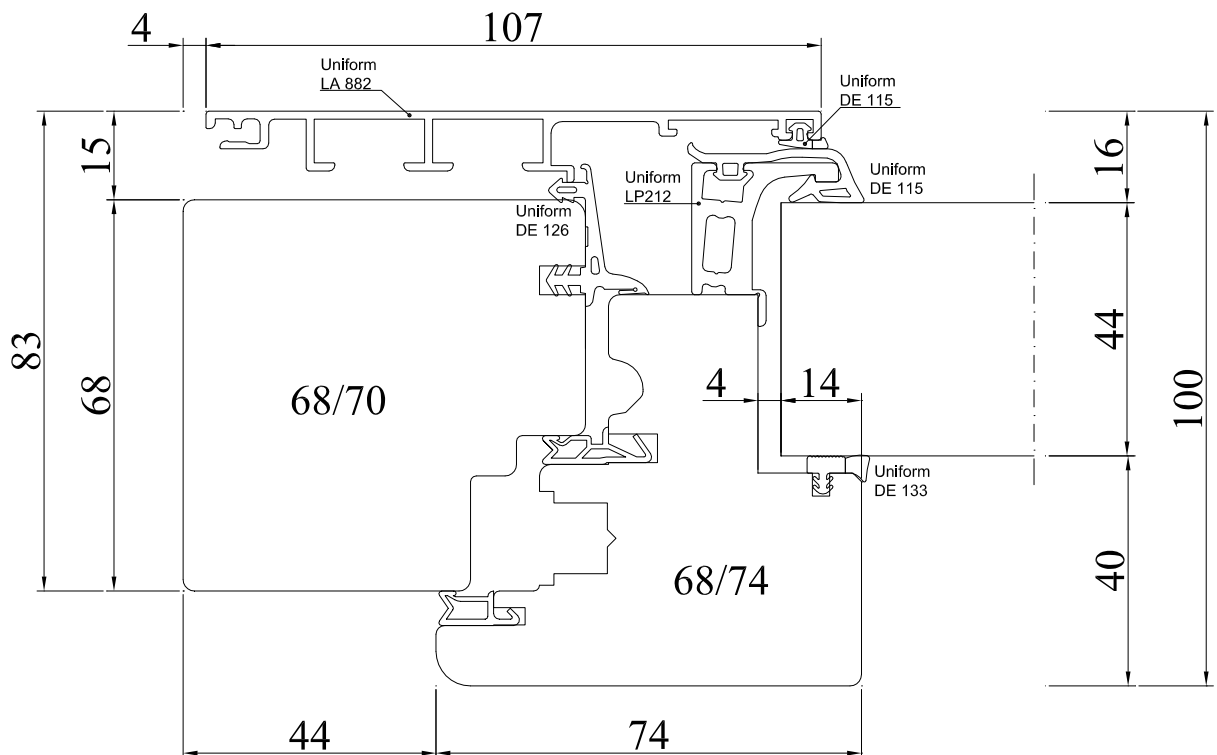


Fig. 2: Cross section frame profile