Evidence of Performance

Resistance to wind load
Watertightness
Air permeability

Test Report 10-001156-PB01-A01-02-en-01

Client	Gencer Aluminyum Profil San.ve Tic. A.S. Osmangazi Mah.Sanayi Cad.No:42 Darica 41700 Gebze/Kocaeli Turkey
Product	Tilt and turn window
System	W65 Euro Comfort
Overall dimensions (W x H)	856 mm x 1,356 mm
Frame material	Aluminium profiles with thermal break
Special features	Centre rebate seal: Additional sealed with pourable sealant, horizontal at bottom and on hinge side and on lock side 300 mm from bottom corner. Centre rebate seal: Additional sealed with pourable sealant at corners. Glazing beads: Additional sealed with pourable sealant at corners. Glazing rebate: Additional sealed with pourable sealant, at bottom, at top, on hinge side and on lock side. No vapour pressure equalisation.

Resistance to wind load – EN 12210

Class C4 / B4

Watertightness – EN 12208

Class E1500

Air permeability – EN 12207

Class 4

ift Rosenheim
19. März 2011

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Basis

EN 14351-1:2006+A1:2010

Test standards:
EN 1026 : 2000-06
EN 1027 : 2000-06
EN 12211 : 2000-06
EN 12046-1 : 2003-11
EN 14609 : 2004-03

Corresponds to the national standard. (DIN EN)

Representation

Instruction for use

The present test report serves to demonstrate the above characteristics of windows according to EN 14351. The results obtained can be used by the manufacturer as the basis for the manufacturer ITT test report summary. The conditions and requirements set out by EN 14351-1 shall be observed.

Validity

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

The test results can be extrapolated as per EN 14351-1, under observance of Annex E 1., under the manufacturer's own responsibility.

The test does not allow any statement to be made on further characteristics of the present structure and quality, in particular the effects of weathering and ageing.

Notes on publication

The **ift**-Guidance Sheet "Conditions and Guidance for the Use of **ift** Test Documents" applies.

The cover sheet can not be used as an abstract.

Contents

The report contains a total of 14 pages.

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DAP-ZE-2288.00
TGA-ZM-16-93-00
TGA-ZM-16-93-60

3 Detailed results

Test record

Specimen	Tilt and turn window					
Project No.	10-001156					
Client	Gençer Alüminyum Profil San. Ve Tic. A.Ş.	Size of window frame	856	x	1356	mm
System	W65 Euro Comfort	Size of casement	795	x	1295	mm
Frame material	Aluminium profiles with thermal break					
Date of test	07. March 2011	Area of test specimen	1,2	m²		
Tester	A.Özcelik	Length of opening joints	4,2	m		
Specimen No.	28389/012	Casement weight	31,6	kg		
Date of delivery	04. March 2011	Temperature	19,4	° C		
Date of manufacture	March 2010	Air humidity	37	%		
Attended by:	Hr.Oğuzhan Erol, Hr.Özkan Tuna	Air pressure	1015	hPa		

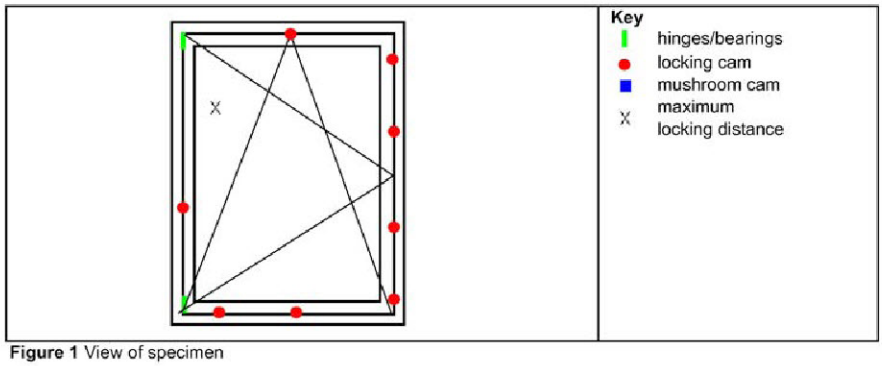

Figure 1 View of specimen

1 Operating forces - Test according to EN 12046

Table: Measurement of operating forces

Individual measured in Nm	**1**	**2**	**3**	**Average value**
	15,9	15,2	15,4	15,5

2 Air permeability - Test according to EN 1026

Table: Air permeability at positive wind pressure

Measured results at positive wind pressure	**Pressure differential in Pa**	**50**	**100**	**150**	**200**	**250**	**300**	**450**	**600**
	Flow rate (volume) m³/h	0,1	0,1	0,3	0,4	0,5	0,7	1,2	1,7
	Joint length-related m³/hm	*)	*)	*)	*)	0,12	0,17	0,29	0,41
	Overall area-related m³/hm²	*)	*)	*)	*)	0,43	0,60	1,03	1,46

*) The measured values were below the 0,5m³/h leak flow volume of the displacement transducer. The precision of measurements is 0,1m³/h.

Table: Air permeability at negative wind pressure

Measured results at negative wind pressure	**Pressure differential in Pa**	**50**	**100**	**150**	**200**	**250**	**300**	**450**	**600**
	Flow rate (volume) m³/h	0,1	0,3	0,4	0,5	0,6	0,7	0,7	0,8
	Joint length-related m³/hm	*)	*)	*)	0,12	0,14	0,17	0,17	0,19
	Overall area-related m³/hm²	*)	*)	*)	0,43	0,52	0,60	0,60	0,69

*) The measured values were below the 0,5m³/h leak flow volume of the displacement transducer. The precision of measurements is 0,1m³/h.

Table: Air permeability from average values from positive and negative wind pressures

Average value from positive and negative wind pressures	**Pressure differential in Pa**	**50**	**100**	**150**	**200**	**250**	**300**	**450**	**600**
	Flow rate (volume) m³/h	0,1	0,2	0,4	0,5	0,6	0,7	1,0	1,3
	Joint length-related m³/hm	*)	*)	*)	*)	0,13	0,17	0,23	0,30
	Overall area-related m³/hm²	*)	*)	*)	*)	0,47	0,60	0,82	1,08

*) The measured values were below the 0,5m³/h leak flow volume of the displacement transducer. The precision of measurements is 0,1m³/h.

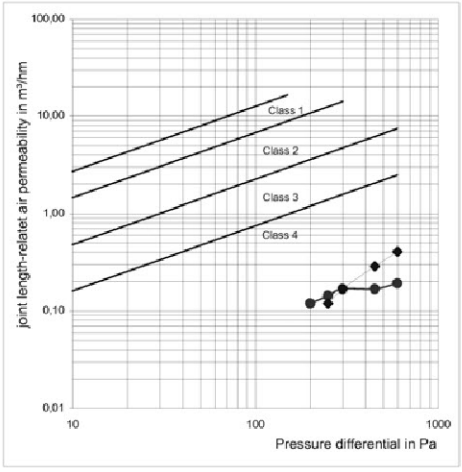

Diagram: Joint length-related air permeability (positive and negative wind pressures)

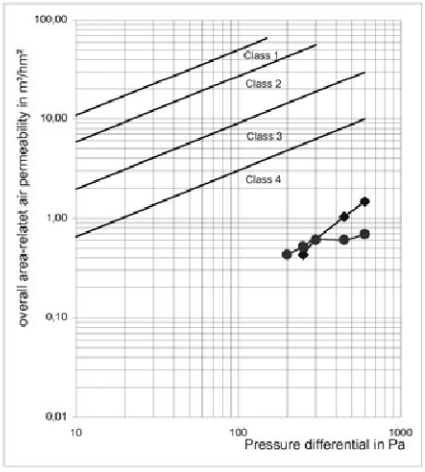

Diagram: Overall area-related air permeability (positive and negative wind pressures)

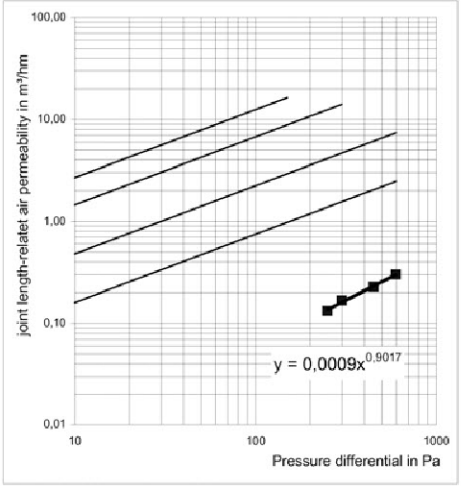

Diagram: Joint length-related air permeability (average value from positive and negative wind pressures)

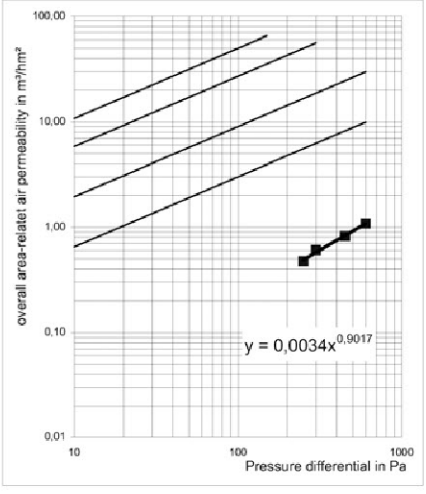

Diagram: Overall area-related air permeability (average value from positive and negative wind pressures)

Table: Measured results

Reference air permeability related to joint length	Q100 <	0,10	m³/hm
Reference air permeability related to overall area	Q100 <	0,10	m³/hm²

3 Resistance to wind load - Test according to EN 12211

3.1 Deflection under wind load

Maximum test pressure: ± 1600 Pa 3 pressure pulses of 1760 Pa

Deflection was not measured because due to the perimeter locking and the existing locking distance no deformation of the frame members > l/300 is likely to occur at the specified wind loads.
The test specimen was exposed to a load ± 1600 Pa as specified by EN 12211.

3.2 Dynamic wind loads (negative / positive pressures)

Table: Pressure steps

p_2	Pa	200	400	600	800	1000
passed					✓	

50 cycles at p_2 ± 800 Pa
No malfunctions were detected.

4 Repeat test of air permeability - Test according to EN 1026

Subsequent to the test of resistance to wind load by application of test pressures p_1 and p_2, the upper limit of the achieved air permeability class must not be exceeded by more than 20% as set out by EN 12207 (Clause 2 of this test record).
The requirements were **fulfilled.**

5 Watertightness - Test according to EN 1027

No water penetration at up to 1950 Pa detected.

3.3 Resistance to wind load - Test according to EN 12211 - Safety test

		positive wind pressure					negative wind pressure				
p_2	Pa	600	1200	1800	2400	3000	-600	-1200	-1800	-2400	-3000
passed					✓					✓	

Safety test passed at up to p_3 ± 2400 Pa passed.

6 Load-bearing capacity of safety devices

The testing of the safety device is carried out with a load of 350N for 60s.
No malfunctions were detected at the test specimen.

ift Rosenheim
07. March 2011