

PRÜFINSTITUT

für Bauelemente GmbH

Zweibrücker Str. 217 ■ D-66954 Pirmasens

Test Report

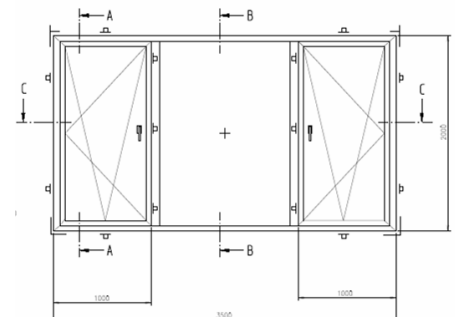
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Annex 1

Client: Profine GmbH
Zweibrücker Straße 200
D-66954 Pirmasens

Specification: Windows – Methods of test
Australian Standard AS 4420

Item Tested: Tilt and Turn with fixed light
System Kömmerling Gold 58 mm



Test Date: 14.08.2006

Test Results:	Deflection / span ratio	1: 285 at 1500 Pa
	Operation force	Passed
	Air infiltration	Passed
	Water Resistance	450 Pa
	Ultimate strength	2300 Pa

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Client	Profine GmbH Zweibrücker Straße 200, D-66954 Pirmasens	

1. General Information

Profine GmbH, Germany commissioned the PIB GmbH (Test institute for building elements) in Pirmasens, Germany on June 6th 2006 to perform a testing of a window according to the Australian Standard for windows testing AS 4420 in accordance to the requirements of AS 2047.

The item tested is a Tilt and Turn Window with fixed light. The element size is 3.5x2.2 [m]. Date of delivery of the test specimen June 6th 2006.

The client supplied the PIB with drawings, description of the test samples including profile references and a manual. These documents represent accurately the test sample in all respects.

2. Description of the sample

Sample type:	Tilt and Turn window with fixed light		Manufacturer:	profine GmbH D-66954 Pirmasens	
System:	Kömmerling Gold 58		Profiles		
Material:	PVC-U		Profiles reference	Frame	1461
Element size:	3500 x 2200 (w x h)	[mm]		Sash	1463
	7.7	[m ²]			
Sash size:	1000 x 2110	[mm]		Mullion	1461
Opening joint:	12.4	[m]		Glazing bead	1355.1
Construction:	Mitred, welded and grooved joints	[mm]	Reinforcement reference	Frame	9199
Glass:	Doubled glazed, 6-12-6, sealed unit	[mm]		Sash	9202
Fittings:	9 point Roto tilt and turn system operated by a single handle			Mullion	9199 plus 9120
Drainage:	<u>Frame:</u> 3 slots 5x15 mm per field from the rebate into the pre chamber and 9 slots 5x28 mm from the pre-chamber to outside		gaskets	Frame	9040
				Sash:	9040
	<u>Sash:</u> 2 slots 5x15 mm top and bottom per sash			Glazing	Inner: coextruded Outer: 9044.1

3. Performance

The test rig is a model from K+S Schulten, Germany. On the rig elements up to 3.7 m wide and 2.5 m high can be tested. The centrifugal fan reaches 250m³/h and a maximum pressure difference of +/- 3000 Pa.

The test sequences are programmed and the test performance is operated by the computer. All data are electronically measured and saved on a data base.

The test elements were mounted in a metal subframe to fix on the test rig.

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4. Examination and Test

Date of Test:	14th August 2006	Temperature °C:	20	Air pressure [hPa]	1010
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4.1 Deflection Test according to AS 4420.2

The test procedure follows AS 4420.2. The span (A-B) was 2025 mm

Maximum deflection at l/150 ->13.5 mm, at l/180 -> 11.3 mm and at l/250 -> 8.1 mm

Pressure [Pa]	Duration [min]	Displacement [mm]			Mid span deflection [mm]	Deflection ratio
		1 (A,top)	2 (C,mid)	3 (B,bottom)		
0	1	0,0	0,0	0,0	0,0	-
250	1	0,1	0,9	0,2	0,8	1:2531
500	1	0,3	2,1	0,6	1,7	1:1191
750	1	0,5	3,7	1,2	2,9	1:698
1000	1	0,8	5,5	2,0	4,1	1:494
1250	1	1,1	7,5	3,1	5,4	1:375
1500	1	1,4	9,7	4,5	6,7	1:302
0	2	0,3	1,7	0,9	1,1	-

Pressure [Pa]	Duration [min]	Displacement [mm]			Mid span deflection [mm]	Deflection ratio
		1 (A,top)	2 (C,mid)	3 (B,bottom)		
0	1	0	0	0	0	
- 250	1	-0,2	-1,2	-0,3	-1,0	1:2025
- 500	1	-0,4	-2,6	-0,7	-2,0	1:1013
- 750	1	-0,6	-4,0	-1,0	-3,2	1:633
- 1000	1	-0,8	-5,6	-1,5	-4,4	1:460
- 1250	1	-1,1	-7,2	-1,9	-5,7	1:355
- 1500	1	-1,3	-9,0	-2,3	-7,1	1:285
0	2	-0,5	-2,3	-0,9	-1,7	-

Result:

Building type	Max deflection ratio	Serviceability design wind pressure
housing	1 :150	1 500 Pa
residential	1 :180	1 500 Pa
commercial	1 :250	1 500 Pa

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4.2 Operation force test according to AS 4420.3

The test procedure follows AS 4420.3

Force	Tilt and Turn
to open handle	7.5 Nm right sash 7.0 Nm left sash

4.3 Air Infiltration Test according to AS 4420.4

The test procedure follows AS 4420.4

Pressure [Pa]	Duration [sec]	Total [m ³ /h]	Total [L/s] *0.278	Air infiltration L/sm ² Area = 7.7 m ²
0	15	0	0	0
75	15	6,81	1,89	0,25
150	15	10,95	3,04	0,39
0	15	0	0	0
-75	15	6,11	1,70	0,22
-150	15	8,87	2,47	0,32

The maximum air infiltration according to AS 2047 should be less than 1 l/sm² at 75 Pa and less than 1.6 l/sm² at 150 Pa for air-conditioned building types. The measured air infiltration fulfils this requirement.

Air infiltration test for air conditioned building type

passed

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4.4 Water penetration test according to AS 4420.5

The test procedure follows AS 4420.5 Spraying Method (unprotected mounting) with a jet line and an amount of 3l/(min·m²). Tilt of the axis 24° to horizontal line.

Result:

pressure difference [Pa]		duration [s]		water [l/m ²]	
<i>Nominal</i>	<i>actual</i>	<i>Nominal</i>	<i>actual</i>	<i>nominal</i>	<i>actual</i>
0	0	300	300	20	18.9
450	450	900	900	20	19.4

No occurrence of leakage at 450 Pa.

Rating: This window is classified for water penetration resistance in N 6

4.5 Ultimate Strength test according to AS 4420.6

The test procedure follows AS 4420.6.

Within 1min. the differential pressure has been increased to the determined test pressure of 2300 Pa maintained for 10 sec. No collapse of the element, described in AS 2047 had been observed.

Rating: This window is classified for ultimate strength in N 4

Pirmasens, August 18th 2006

Certified by



i.V. Dr. Claus Doernfeld
Head of Laboratory



tested by



i. A. Walter Kau
Test Engineer

Client

Profine GmbH

Zweibrücker Straße 200, D-66954 Pirmasens

