

Test Report Summary and Expert Statement

Airborne Sound Insulation of Building Elements

11-000845-PR02
(PB-A01-04-en-01)



Client **aluplast GmbH**
Kunststoffprofile
Auf der Breit 2

D-76227 Karlsruhe

Basis

EN ISO 140-1:1997+A1:2004
EN ISO 140-3 :1995+A1:2004
EN ISO 717-1: 1996+A1:2006
EN 14351-1 : 2006

Test reports referring to win-
dows from System aluplast
ideal 2000.

This Test Report Summary and
Expert Statement is a transla-
tion of Test Report Summary
and Expert Statement no. 11-
000845-PR02 (PB-A01-04-de-
01) dated 31 August 2011.

Instructions for use

This expert statement together
with the above basis serve to
demonstrate the airborne sound
insulation of a building element.

As per DIN 4109:1989-11,
the following is applicable in
Germany:

- R_w corresponds to $R_{w,P}$,
 $R_{w,R} = R_{w,P} - 2$ dB
- $R_{w,R}$ for Construction
Products List (Bauregelliste)

Product	Single window, single leaf
Designation	ideal 2000
Overall dimensions (W x H)	1,230 mm x 1,480 mm
Frame material	PVC profiles with steel reinforcement
Type of opening	Tilt and turn
Glazing	Insulating glass unit (IGU)
Frame - structural depth	Frame member: 60 mm

Additional design
variants See type list

Validity

Testing the airborne sound in-
sulation of a window does not
allow any statement to be made
on any additional properties re-
lating to performance and qual-
ity of the present construction.

Weighted sound reduction index R_w
Spectrum adaptation terms C and C_{tr}



$R_w (C;C_{tr})$ in dB

Notes on publication

The ift Guidance Sheet "Condi-
tions and Guidance for the Use
of ift Test Reports" applies.

*) based on sound insulation tests



ift Rosenheim
04 October 2011

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The report comprises a total of
6 pages.

Cover sheet

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2 Basis

The evaluation is based on:

- DIN EN 20140-2:1993-05, "Acoustics; measurement of sound insulation in buildings and of building elements - Part 2: Determination, verification and application of precision data"
- DIN EN 140-3:2005, "Acoustics; measurement of sound insulation in buildings and of building elements - Part 3: Laboratory measurements of airborne sound insulation of building elements"
- DIN EN ISO 10140-2:2010-12, "Acoustics - Laboratory measurement of sound insulation of building elements - Part 2: Measurement of airborne sound insulation "
- DIN EN ISO 717-1:1997, "Acoustics; measurement of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation"
- DIN 4109 Addendum 1 / A1 Table 40: 2003:09
- DIN EN 12758:2002, "Glass in Building – Glazing and airborne sound insulation - Definitions and determination of properties "
- DIN EN 14351-01:2006, "Windows and doors - Product standard, performance characteristics - Part 1: Windows and external pedestrian doors without resistance to fire and/or smoke leakage characteristics"
- Test of airborne sound insulation of windows from Systems ideal 2000 of company aluplast according to list of test reports/test evidence given in Section 3, i.e.:

Test reports No. 161 29751 / Z14 R1, Z16 R1 and Z18 R1 dated 1 September 2005 referring to sound insulation measurements of System IDEAL 2000 by ift Rosenheim, as commissioned by company aluplast GmbH

- Expert statements No. 175 41510 dated 6 August 2009 referring to sound insulation of window units from System IDEAL 2000 by ift Rosenheim, commissioned by company aluplast GmbH

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referring to verification of airborne sound insulation of building elements

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3 List of test reports

List of test reports

No.	Type	Design, Dimensions, Type of opening	Glazing Gas filling: Argon	R _w of glass in dB	Test result in dB R _w (C;C _{tr})	Evidence of Performance
1.	ideal 2000 with steel reinforce- ment	Single window, single leaf, 1.23 x 1.48, tilt and turn, 1 external gasket 1 internal gasket	4/16/4	29	32 (-1;-4)	17541510
2.			9 LSG SI/16/6	41	41 (-2;-5)	161 29751/Z14 R1
3.			10 LSG SI/16/6	42	42 (-2;-5)	161 29751/Z16 R1
4.			9 LSG SI/16/10	45	43 (-1;-2)	161 29751/Z18 R1

Note: R_w of glass specified by client

4 List of variants

4.1 Design - window unit ideal 2000

The design covers windows with casement and frame of 60 mm structural depth each.

Further characteristics of the windows listed in this Section

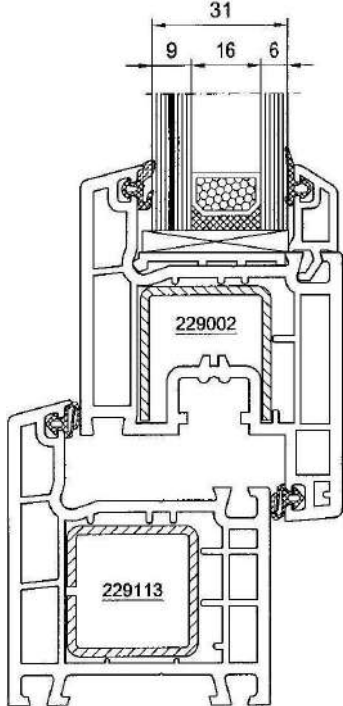
Product	single window, single leaf
Opening direction	opening inwards
Type of opening	tilt and turn
Rebate seals	1 external gasket, 1 internal gasket

The below variants were tested:

Window composed of PVC profiles with steel reinforcement

The table below gives an overview of the design.

Design - single window

Type	Variant	Drawing	Maximum glass thickness
ideal 2000	PVC profiles with steel reinforcement, structural depth of casement member: 60 mm		35 mm

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4.2 Tested variants

The following lists the weighted sound reduction indices and spectrum adaptation terms for single windows sized 1.23 x 1.48 obtained from sound insulation testing.

Glass configuration		4 / 16 Ar / 4	9 LSG SI / 16 Ar / 6	10 LSG SI / 16 Ar / 6	10 / 16 Ar / 9 LSG SI
Nominal glass thickness		24 mm	30mm	32 mm	34 mm
R _w , glass		29 dB	41 / 42 dB	42 dB	45 dB
System		R _w (C;C _{tr}) in dB			
ideal 2000	with steel reinforcement, structural depth of casement member: 60 mm	32 (-1;-5)	41 (-2;-5)	42 (-2;-5)	43 (-1;-2)

5 Expert evaluation

5.1 Evaluation

In addition to the test results listed in Section 4.2, the sound insulation of these windows was to be verified for additional insulating glass units on the basis of the tabulated values given in DIN EN 14351-1. The glass configurations used had been specified by the client. The sound reduction indices R_{w,P,Glas} of these glass configurations were determined on the basis of the tabulated values given in DIN EN 12758. These data were used to determine the sound reduction of the window units as set out by Annex B of product standard DIN EN 14351-1.

Apart from glazing, it is prerequisite for application/extrapolation of these findings that the evaluated window units are the same as those tested; this applies in particular to the dimensions of frame/casement members, the profile cross sections, rebate seals and hardware/fittings.

5.2 Result of expert evaluation

Glass configuration		6/16/4	8/16/4	10/16/4	10/16/6
Gas filling		Argon each			
Glass R _w (C;C _{tr})		32 (-2;-4) dB	33 (-1;-4) dB	35 (-2;-5) dB	35 (-1;-3) dB
System		R _w (C;C _{tr}) in dB			
ideal 2000	with steel reinforcement, structural depth of casement member: 60 mm	34 (-1;-4)	34 (-1;-4)	35 (-1;-4)	35 (-1;-3)

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6 Result and statement

Based on the test results listed in Section 3 and the expert evaluation contained in Section 5.1, conformity with the characteristics listed in Section 4.2 and 5.2 is achieved.

For the specified sound reduction indices the acoustic inaccuracies as set out by DIN EN 20140-2, must be taken into account. Prerequisite for conformity with the values is that the quality of the material used as well as the manufacture and assembly/installation of the units are the same as tested.