Test Report

167 31287/Z5e*)

ift ROSENHEIM

Report date	27. March 2006
Client	C.C.E. srl Via dell'Arigianato 16 35010 Villa del Conte (PD) Italy
Order	Determination of the sound reduction index R on the basis of DIN EN ISO 140-3:2005-03 Weighting according to DIN EN ISO 717-1:1997-01
Specimen	Floor seal in a highly sound insulating door element "Mini Plus"

Contents

*) This test report is a translation of test report no. 167 31287/Z5 dated 21.02.2006.

LSW - Labor für Schall- und Wärmemesstechnik GmbH
- das Schallschutzprüfzentrum des ift Rosenheim
Geschäftsführer:
Prof. Fritz Holtz

Lackermannweg 26
D-83071 Stephanskirchen
Tel.+49 (0) 8036 / 3006-0
Fax+49 (0) 8036 / 3006-33
www.lsw-gmbh.de

Sitz: 83026 Rosenheim
AG Traunstein, HRB 14821
Sparkasse Rosenheim
Kto. 500 434 626
BLZ 711 500 00

Anerkannte Prüf-, Überwachungs- und Zertifizierungsstelle nach Landesbauordnung: BAY24
Sachverständige Prüfstelle Gruppe I
für Eignungs- und Güteprüfung nach DIN 4109

ift ROSENHEIM

1 Object

1.1 Description of test specimen (All dimensions in mm)

Product	Floor seal in a highly sound insulating door element
Manufacturer*	C.C.E. srl.
Date of manufacture*	February 2006
Product designation*	Mini Plus
Floor seal	Retractable floor seal, operating on hinge side, External casing screwed to groove base from the bottom, Gasket incl. aluminium support profile inserted on hinge side, Number of pressure points: 2.
Dimensions of casing	
Width	top 13,0 mm, bottom 13,0 mm
Height	28,0 mm
Length	959 mm
Material of casing*	Aluminium
Material of sealing lip*	Plastic mixture
Length of gasket	Corresponds to frame rebate dimensions at floor level
Depth of groove	28 mm
Width of groove	13,2 mm
Floor gap	5,0 mm to 6,0 mm
Remaining closing distance at initiation of release	Lock side 170 mm
Installation	Flush with bottom edge of door leaf
Floor	The floor seal operates on a flat metal rail made from steel
Joint depth	57 mm
Doorset	High-performance acoustic door leaf
Design	Base leaf 47 mm multilayer door leaf with single rebate, overlap and frame seal Reinforcements made from lead, steel sheet and heavy-duty bituminous material Steel sheet lining on both side, coated with heavy-duty bituminous material, resp. chip board, voids filled with absorption material. Lining in tapered format towards the floor joint
Size of door leaf	985 mm × 1985 mm
Thickness of doorset	Top 200 mm, bottom 57 mm
Seals	Hollow chamber TPE lip seal in frame and door leaf. Plastic sealant is applied to either side of seals at top and sides. This side sealing starts at a height of 20 mm above floor.
Frame	Timber sub-frame
Design	25 mm Multiplex reinforced with lead and steel sheet, connecting joint of frame fully filled with foam and sealed on either side with plastic sealant.

The description is based on inspection of the test specimen at **ift** Schallschutzzentrum. Article designations/ numbers as well as material specifications were given by the client. (Further manufacturer data marked with *).)

1.2 Mounting into test rig

- The frame was mounted flush with the the source room side of partition's test opening of the door test rig „Z", with suppressed flanking transmission according to EN ISO 140-1:1997 + A1: 2004, by the ift Schallschutzzentrum; the test rig features an insert frame with 5 cm continuous separating joint which is sealed in the test opening with permanently flexible closed-pore sealant.
- The high-performance acoustic unit is described in Clause 1 Object. The acoustic separation of the test rig was not bridged.
- The test opening was arranged with the bottom door edge being close to the floor.
- The door leaf was attached to the frame, both sides of the functional joint were additionally sealed at the sides (except side with 20 mm distance from bottom) and the top using sealant type Perennator 2001 S, to prevent leakage through the functional joints at the top and the side.

1.3 Representation of test specimen

The structural details were examined solely on the basis of the characteristics to be classified. The illustrations are based on unchanged documentation provided by the client.

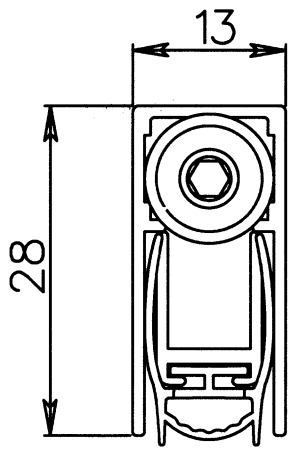


Figure 1 sectional drawing

ift ROSENHEIM

2 Procedure

2.1 Sampling

The samples were selected by the client.

Quantity	1
Delivered	20 February 2006 by client
Registration No.	19622/3

2.2 Process

Goal of the investigation	Test of the acoustic suitability of a lowerable floor seal type Mini Plus for doors
Technical basics	
EN ISO 140-1:1997 + A1:2004	Acoustic - Measurement of sound insulation in buildings and of building elements – part 1: Requirements for laboratory test facilities with suppressed flanking transmission
EN 20140-3:1995 + A1:2004	Acoustic - Measurement of sound insulation in buildings and of building elements – part 3: Laboratory measurements of airborne sound insulation of building elements
EN ISO 717-1 : 1996-12	Acoustics – Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound reduction
Corresponds to national german version:	
DIN EN ISO 140-1:2005-03, DIN EN ISO 140-3:2005-03 und DIN EN ISO 717-1 : 1997-01	
Boundary conditions	As specified by the standard requirements with the exception of the below stated deviations.
Deviations	The test setup was installed to measure the sound transmission through the floor joint. To this end a high-performance acoustic door leaf was mounted into a special frame and the top and side functional joints were sealed.
Test noise	Pink noise
Filter	1/3rd octave band filter
Test limits	
Background noise	The background noise was not measured in the receiving room.
Maximum sound insulation	The difference between sound insulation and maximum sound insulation of the test setup is party below 15 dB. It was corrected by calculation according to DIN EN ISO 140-3 Annex B. The diagram annexed shows the maximum sound insulation. Maximum sound insulation of the test setup for the floor seal was determined on the basis of the high-performance sound insulation door leaf described in Clause 1.

ROSENHEIM

Measurement of reverberation time: Arithmetical mean: 9 measurements each of 2 loudspeaker positions (moving microphone positions)

Measurement equation A: $A = 0{,}16 \cdot \frac{V}{T}$ m²

Measurement of sound level difference: Minimum of 2 loudspeaker positions and rotating microphones.

Measurement equation: $R = L_1 - L_2 + 10 \cdot \lg \frac{S}{A}$ dB

KEY

A	Equivalent absorption area in m²
L_1	Sound level of sending room in dB
L_2	Sound level of receiving room in dB
R	Sound reduction index dB
T	Reverberation time in s
V	Volume of receiving room in m³
S	Test surface of specimen in m² S = 2,02m²

2.3 Test equipment

Device	Type	Producer
Integrating sound meter	Type Nortronic 830	Norsonic-Tippkemper
Microphone preamplifiers	Type 1201	Norsonic-Tippkemper
Microphone units	Type 1220	Norsonic-Tippkemper
Calibrator	Type 1251	Norsonic-Tippkemper
Dodecahedron loudspeakers	Own construction	Norsonic-Tippkemper
Amplifier	Type E 120	Norsonic-Tippkemper
Rotating microphone boom	Own construction Type 231-N-360	Norsonic-Tippkemper

2.4 Testing

Date	20 February 2006
Testing personnel	Andreas Preuss

ift ROSENHEIM

3 Detailed results

The values of the measured airborne sound reduction index of the tested element were plotted in the enclosed data sheet related to frequency and tabled.

For the frequency range of 100 Hz to 3150 Hz the weighted sound reduction index R_w and the spectrum adaptation terms C and C_{tr} are calculated according to EN ISO 717-1 : 1996-12 with the following results :

$$\mathbf{R_w\,(C;C_{tr}) = 51\,(0;0)\ dB}$$

As set out by EN ISO 717-1:1996-12, the following additional spectrum adaptation terms are obtained:

$C_{50\text{-}3150}$	=	- dB	$C_{100\text{-}5000}$	=	0 dB	$C_{50\text{-}5000}$	=	- dB
$C_{tr,50\text{-}3150}$	=	- dB	$C_{tr,100\text{-}5000}$	=	0 dB	$C_{tr,50\text{-}5000}$	=	- dB

4 Notes on publication

The **ift** notice "Conditions and notes for the use of **ift** test documents" applies.
This report is not suitable for evidence of sound insulation properties as set out by DIN 4109.

ift Rosenheim
27th March 2006

Dr. Joachim Hessinger, Dipl.-Phys.
Head of test laboratory
ift Centre for Acoustic

Andreas Preuss, Dipl.-Ing. (FH)
Test engineer
ift Centre for Acoustic

Sound reduction index according to EN 20140 - 3

Laboratory measurement of sound insulation of building elements

Client: C.C.E. srl, I-35010 Villa del Conte (PD)

Product designation Mini Plus

ift ROSENHEIM

Design of test specimen

Floor seal in a highly sound insulating door element

External dimension casing floor seal 959 mm x 28,0 mm x 13,0 mm

Floor gap 5,0 mm to 6,0 mm

Dimension of groove Width 13,2 mm
Depth 28 mm

Installation floor seal flush with bottom edge of door leaf

Test date 20 February 2006

Test opening 1,005 m x 2,010 m = 2,02 m^2

Partition wall of test rig
Double-leaf concrete wall, mounting frame

Test noise Pink noise

Volumes of test rooms V_S = 101 m^3
V_E = 67,5 m^3

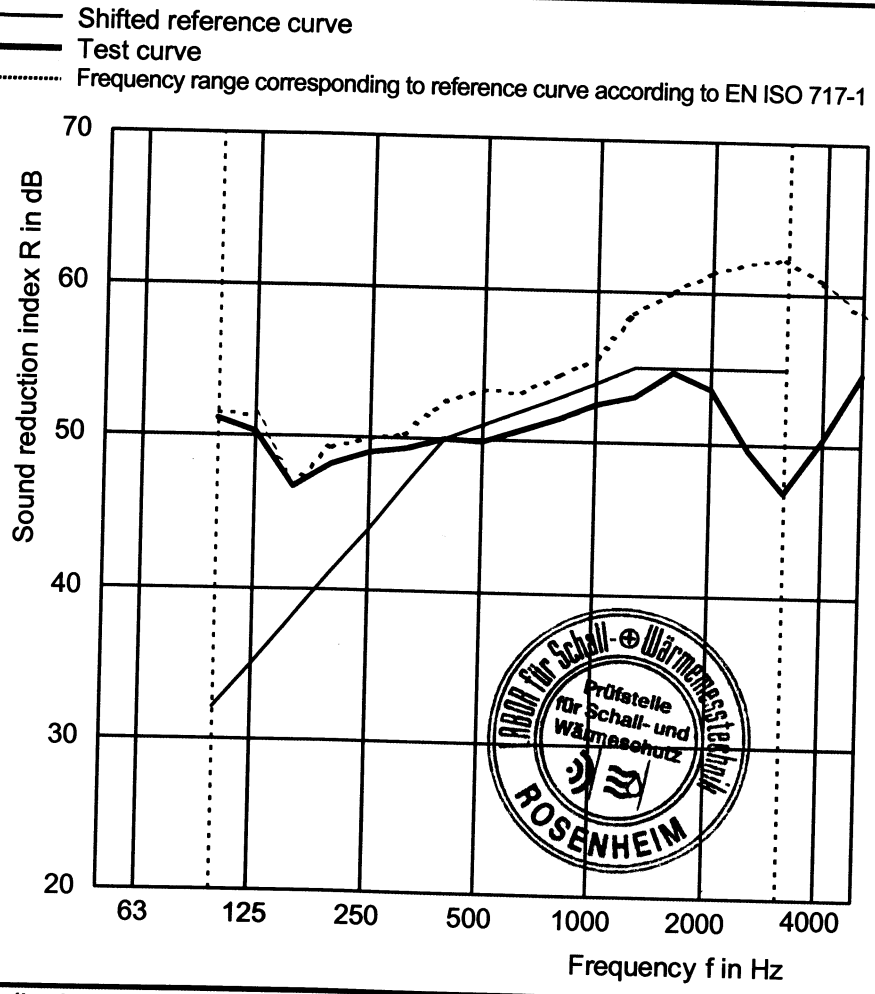
Maximum sound reduction index
$R_{w,max}$ = 57 dB (related to test area)

Installation conditions
Floorseal mounted into a highly sound insulating doorelement

Climatic conditions in test rooms 19 °C / 35 % RH

f in Hz	R in dB
50	-
63	-
80	-
100	51,2*
125	50,4*
160	46,7*
200	48,2*
250	49,1*
315	49,4*
400	50,1*
500	49,9*
630	50,8*
800	51,6*
1000	52,6*
1250	53,1*
1600	54,7*
2000	53,7*
2500	49,6*
3150	46,9
4000	50,5*
5000	54,8*

*= Correction with maximum sound insul.



Rating according to EN ISO 717-1 (in third-octave bands):

R_w ($C;C_{tr}$) = 51 (0;0) dB

$C_{50-3150}$ = - dB; $C_{100-5000}$ = 0 dB; $C_{50-5000}$ = - dB

$C_{tr,50-3150}$ = - dB; $C_{tr,100-5000}$ = 0 dB; $C_{tr,50-5000}$ = - dB

Test report No.: **167 31287/Z5e**

ift Rosenheim
Centre for Acoustic
27 March 2006

Dr. Joachim Hessinger
Head of Testing Department,