

## TEST REPORT

### TS EN ISO 10140-2

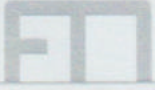
Report Number : 060.066.2/2012

Report Date : 06.04.2012

Testing Reference : Acoustics-Laboratory Measurement of Sound Insulation of Building Elements Part2: Measurement of Airborne Sound Insulation

Product : İzoboxx - Thermal Insulation Material

Client : İTBAK – İnşaat Teknik ve Bilimsel Araştırma Kurulu



## 1. PREFACE

This report comprises of tests and results, which were performed by FTI Façade Testing Institute at the address; Çakıl Village -Bağlar Region, PK.39 34540 Çatalca - İstanbul/ TURKIYE

Test sample comprises of a part of thermal insulation material which have been designed by İzobozz Ataziya Tekstil Kimya San. ve Ltd. Şti.

Test sample has been sent to FTI Façade Testing Institute's testing laboratories on 27.02.2012

## 2. CLIENT

Yapı Araştırma Derneği  
İnşaat Teknik ve Bilimsel Araştırma Kurulu İktisadi İşletmesi  
Eskişehir Yolu Dumlupınar Bulvarı  
Mustafa Kemal Mah. 276 – A Lodumlu-Çankaya  
Ankara / TURKIYE

## 3. TEST METHODS

The above mentioned tests have been carried out as per the test methods provided in project specifications and classified on the standards indicated below. Tests have been reported as the number of 060.066.2 / 2012

TS EN ISO 10140-2 Acoustics-Laboratory Measurement of Sound Insulation of Building Elements  
Part2: Measurement of Airborne Sound Insulation

## 4. TEST DATE AND PARTICIPANTS

Tests were performed on 30.03.2012 and 02.04.2012 with the following participants:

Oktay USTA	FTI	Laboratory Manager
Öner ARSLAN	FTI	Testing Engineer
Serhat ÇOLAK	FTI	Testing Engineer

and partially by

Özden ÖZKÖSE İzobozz Ataziya Tekstil Kimya San. ve Ltd. Şti.

## 5. DESCRIPTION OF TEST SAMPLE

* Type of Sample	Wall Covering Material
* System Name	Izobozz Thermal Insulation Material
* Dimensions of Sample (LxH)	3890 x 2570 mm
* Surface area of Sample	9,99 m <sup>2</sup>
* Fixed Joint Length	18,18 m
* Number of Openable Parts	-
* Opening Type	-
* Surface Area of Openable Parts	-
* Opening Joint Length	-
* Glass Type	-

### System Components

- \* 190 mm Brick
- \* Wall Plaster
- \* Adhesive
- \* Plastic Filet
- \* 20 mm Izobozz
- \* 15 mm Izobozz
- \* 10 mm Izobozz
- \* 7 mm Izobozz

## 6. TEST PERFORMANCE

### 6.1 Test Results

According to the airborne sound insulation tests conducted in the laboratory, weighted sound reduction index rated according to TS 2381-1 EN ISO 717-1:2005 are given here below.

#### 6.1.1 Result of the Main Structure

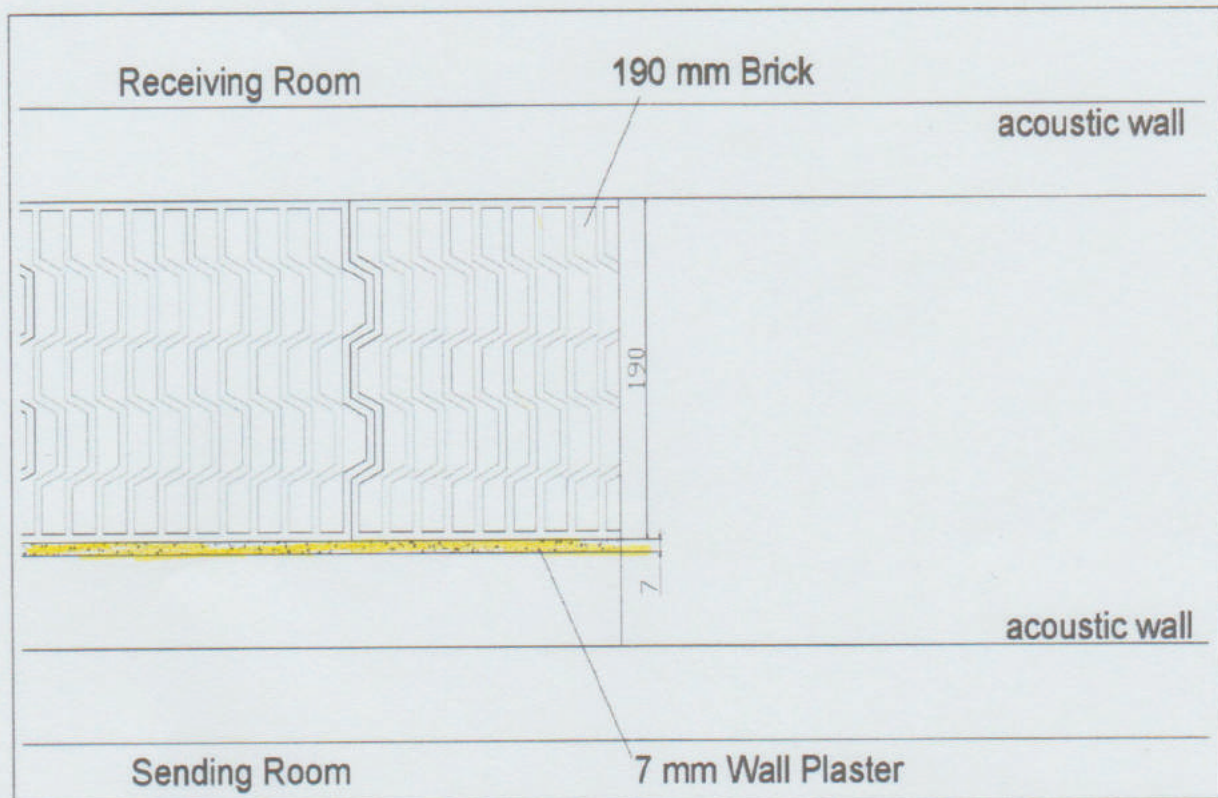


Figure 1 . Technical drawing Plan (Not in scale)

System components are 190 mm bricks and 7 mm wall plaster on the sending room side.

$$R_w(C;C_{tr}) = 33,1 (-0,6 ; -0,2) \text{ dB}$$

Local Temperature	: 13	°C
Atmospheric Pressure	: 1005,1	Mbar
Ambient Humidity	: 61,2	%



**Apparent sound reduction index according to ISO 10140-2**

Laboratory measurements of airborne sound insulation of building elements

Client: ITBAK

Date of test: 30.03.2012

Manufacturer:

Test room identification:

Test specimen mounted by:

Product identification:

Description of the specimen: 19 luk tuğla + kaynak oda tarafında 7 mm siva

Size of test opening:

10,00 m<sup>2</sup>

Mass per unit area:

kg/m<sup>2</sup>

Temperature:

13,0 °C

Air humidity:

60 %

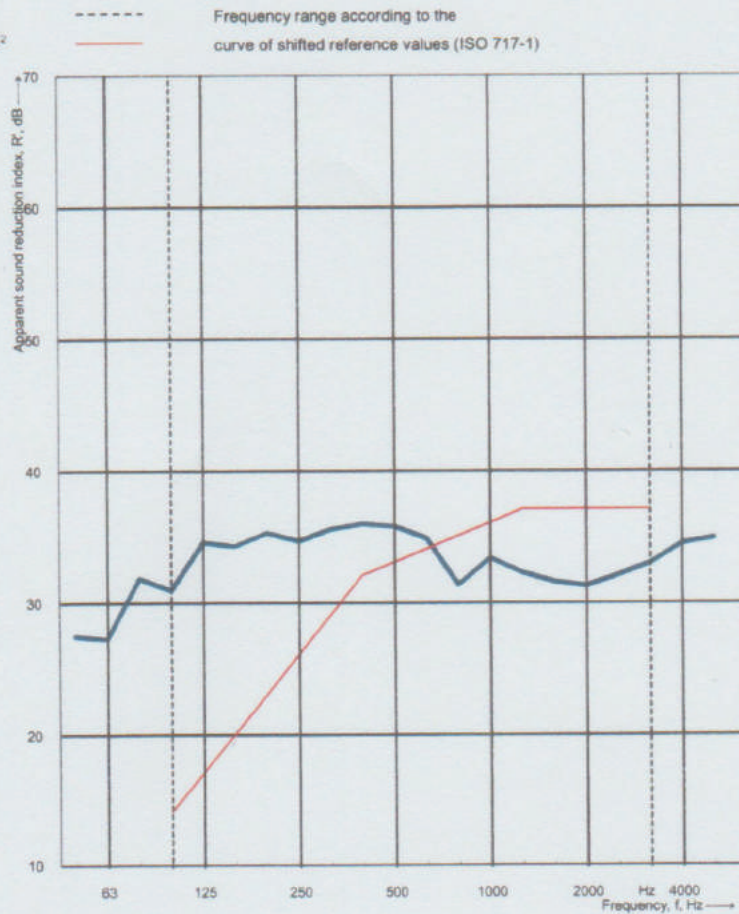
Source room volume:

105,8 m<sup>3</sup>

Receiving room volume:

95,1 m<sup>3</sup>

Frequency f [Hz]	R' 1/3 octava [dB]
50	27,5
63	27,3
80	31,9
100	31,0
125	34,6
160	34,3
200	35,3
250	34,7
315	35,6
400	36,0
500	35,8
630	34,9
800	31,4
1000	33,4
1250	32,3
1600	31,6
2000	31,3
2500	32,1
3150	33,0
4000	34,5
5000	34,9



Rating according to ISO 717-1

$R'_{w}(C;C_{tr}) = 33,1 (-0,6 ; -0,2)$  dB

Evaluation based on laboratory measurement results obtained in one-third-octave bands by an engineering method.

$C_{50-3150} = -0,6$  dB  $C_{50-5000} = -0,2$  dB  $C_{100-5000} = -0,2$  dB

$C_{tr,50-3150} = -0,4$  dB  $C_{tr,50-5000} = -0,5$  dB  $C_{tr,100-5000} = -0,3$  dB

Company:

No. of test report:

2012.142.A01

Date: 30.03.2012

Signature:

6.1.2 Result of the 20 mm İzoboxx Application

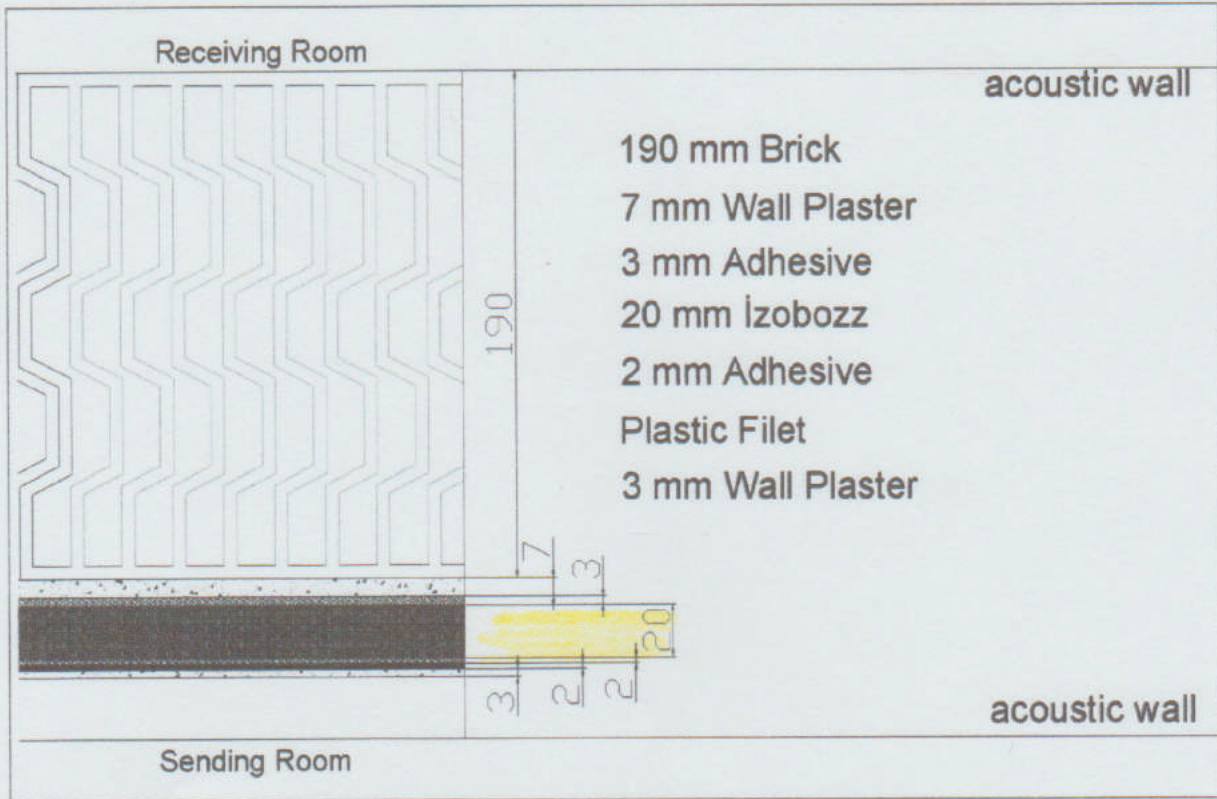


Figure 2 . Technical drawing Plan (Not in scale)

System components are 190 mm bricks, 7 mm wall plaster, 3 mm adhesive, 20 mm izoboxx, 2 mm adhesive, plastic filet and 3 mm wall plaster on the sending room side.

$R_w(C;C_{tr}) = 45,9 (-1,3 ; -4,0) \text{ dB}$

Local Temperature	:	14,1	°C
Atmospheric Pressure	:	1005,1	Mbar
Ambient Humidity	:	61	%

**Apparent sound reduction index according to ISO 10140-2**

Laboratory measurements of airborne sound insulation of building elements

Client: ITBAK

Date of test: 30.03.2012

Manufacturer:

Test room identification:

Test specimen mounted by:

Product identification:

Description of the specimen: 19 luk tuğla+7 mm siva+3mm yapistirici+20mm izobozz+2mm yapistirici+file+3mm siva

Size of test opening:

10,00 m<sup>2</sup>

Mass per unit area:

kg/m<sup>2</sup>

Temperature:

14,1 °C

Air humidity:

61 %

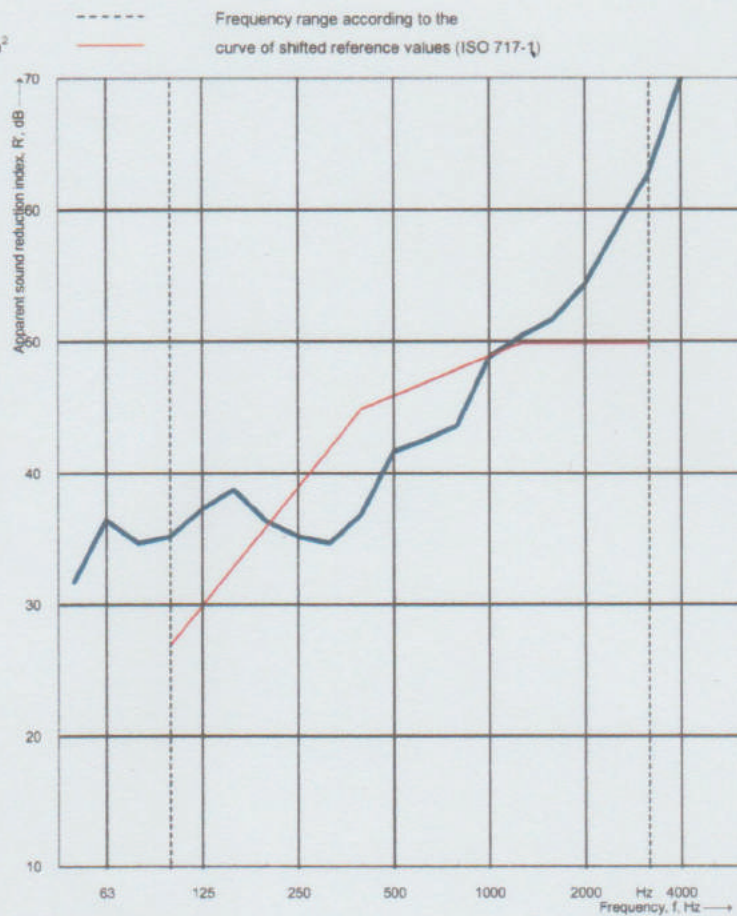
Source room volume:

105,8 m<sup>3</sup>

Receiving room volume:

95,1 m<sup>3</sup>

Frequency f [Hz]	R' 1/3 octave [dB]
50	31,8
63	36,5
80	34,7
100	35,2
125	37,3
160	38,8
200	36,4
250	35,2
315	34,7
400	36,9
500	41,7
630	42,6
800	43,7
1000	48,8
1250	50,4
1600	51,7
2000	54,3
2500	58,6
3150	62,8
4000	69,9
5000	74,7



<sup>1</sup> Background noise too high

Rating according to ISO 717-1

$R'_{w}(C;C_p) = 45,9 (-1,3; -4,0)$  dB

Evaluation based on laboratory measurement results obtained in one-third-octave bands by an engineering method.

$C_{50-3150} = -1,3$  dB  $C_{50-5000} = -0,3$  dB  $C_{100-5000} = -0,3$  dB

$C_{tr,50-3150} = -4,4$  dB  $C_{tr,50-5000} = -4,4$  dB  $C_{tr,100-5000} = -4,0$  dB

Company:

No. of test report:

2012.142.A02

Date: 30.03.2012

Signature:

## 6.2 Mounting in The Laboratory

Test Opening Size	3890 mm x 2570 mm
Test Setup	Modular test wall incorporating openings with differing size. Laboratory conforms to TS EN ISO 10140-5 suppressed flanking transmission suite conditions. Test wall frame is mounted with 50 mm continuous acoustic break filled with rockwool insulation and sealed with elastic PU foam and non setting mastic on all sides. The insert frame was adapted to the necessary test area by utilisation of a high sound insulation light weight wall detail.
Mounting of The Specimen	Carried out by staff of the client.
Mounting Conditions	Test specimen was fitted with foam insulation and sealed on both sides with non setting mastic.

## 6.3 Testing Conditions

Source Room	Volume= 105,8 ; RT ≤ 1,7 s
Receiving Room	Volume= 95,1 ; RT ≤ 1,5 s
Test Opening in The Wall	Largest opening 3890 x 2570 mm (9,99 m <sup>2</sup> )
Depth of Test Opening	250 mm
Total Partition Wall Area	21,07 m <sup>2</sup>
Maximum Sound Insulation	R <sub>max</sub> = 59 dB
Sound Source	Dodecahedron loudspeaker placed in two positions inside the source room
Microphone System	Rotating microphone positioned inside the receiving room with 60s/rotation. A microphone with tripod placed in five different positions inside the source room.
Source Signal	Wideband white noise
Filters	One-third octave band filters with centre frequencies within the range of 50-5000Hz

## 6.4 Test Equipment

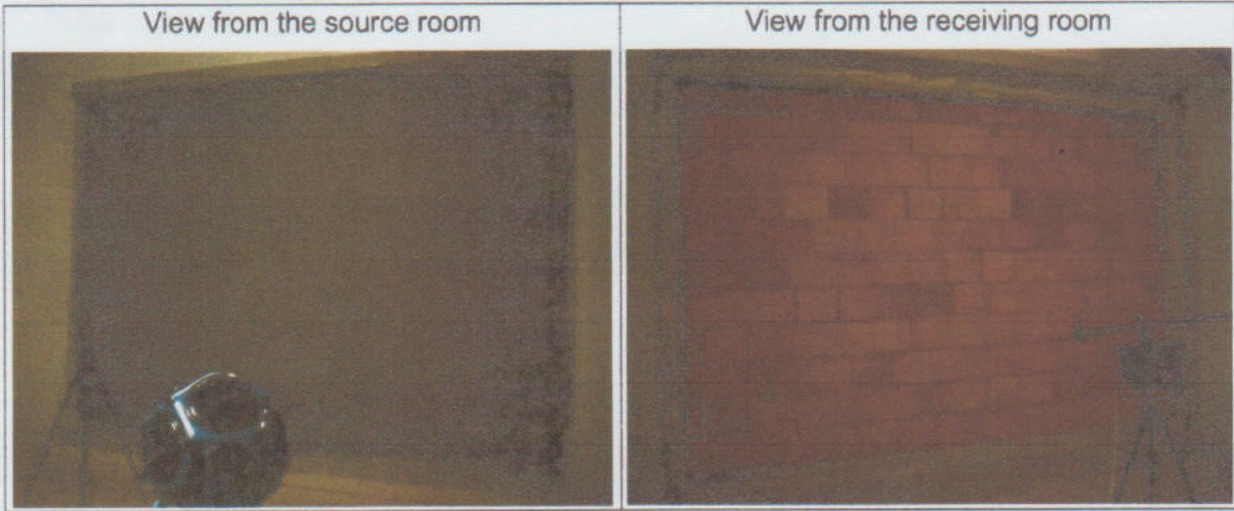
Instrument	Type	Manufacturer
Acoustic Analyser	NOR 140	Norsonic
Sound Level Calibrator	NOR 1251	Norsonic
Sound Source	NOR 270	Norsonic
Amplifier	NOR 280	Norsonic
Rotating Microphone Boom	NOR 265	Norsonic
Microphone Ext. Cables	NOR 1494	Norsonic
Temperature-Humidity Sensor	TFA Dostmann REF 486	TFA Dostmann/Wertheim

## 6.5 Detailed Results

Results obtained from the airborne sound insulation tests of the specimen are given in the following graphs prepared according to TS 2381-1 EN ISO 717-1:2005

Background noise correction was necessary for 2012.142.A02 and 2012.142.A05 tests.

7. PICTURE OF TEST SAMLE



8. RESULTS

	CONDITIONS	RESULTS	CLASSIFICATION
<p><b>TS EN ISO 10140-2</b></p>	<p>190 mm bricks + 7mm wall plaster</p>	<p><math>R_w (C;C_{tr}) = 33,1 (-0,6 ; -0,2) \text{ dB}</math></p>	<p>-</p>
	<p>190 mm bricks + 7 mm wall plaster + 3 mm adhesive + 20 mm izobozz + 2 mm adhesive + plastic file + 3 mm wall plaster</p>	<p><math>R_w (C;C_{tr}) = 45,9 (-1,3 ; -4,0) \text{ dB}</math></p>	<p>-</p>
	<p>190 mm bricks + 7 mm wall plaster + 3 mm adhesive + 15 mm izobozz + 2 mm adhesive + plastic file + 3 mm wall plaster</p>	<p><math>R_w (C;C_{tr}) = 46,5 (-1,4 ; -4,0) \text{ dB}</math></p>	<p>-</p>
	<p>190 mm bricks + 7 mm wall plaster + 3 mm adhesive + 10 mm izobozz + 2 mm adhesive + plastic file + 3 mm wall plaster</p>	<p><math>R_w (C;C_{tr}) = 38,5 (-1,5 ; -2,9) \text{ dB}</math></p>	<p>-</p>
	<p>190 mm bricks + 7 mm wall plaster + 3 mm adhesive + 7 mm izobozz + 5 mm adhesive + 7 mm izobozz + 2 mm adhesive + plastic file + 3 mm wall plaster</p>	<p><math>R_w (C;C_{tr}) = 42,3 (-1,0 ; -2,7) \text{ dB}</math></p>	<p>-</p>



## PERFORMANCE TEST REPORT

### Measurement of Airborne Sound Insulation

Test Report No: 060.066.2 / 2012



Rendered to	: İnşaat Teknik ve Bilimsel Araştırma Kurulu	Norms Applied	: TS EN ISO 10140-2 : EN ISO 717-1
Product	: İzobozz - Thermal Insulation Material		
Sample Size	: 3890 x 2570 mm	Classification Norms	
Sample Description	: 20 mm İzobozz, 15 mm İzobozz : 10 mm İzobozz, 7 + 7 mm İzobozz	Test Comp. Date	: 02 / 04 / 2012
Test Performed	: Measurement of Sound Insulation : Value of the Main Structure (m.s.) Rw ( C ; Ctr ) = 33,1 ( -0,6 ; -0,2 ) dB	Report Date	: 06 / 04 / 2012
		Record Retention Date	: 06 / 04 / 2017
		Number of Pages	: 15
		Number of Annex Pages:	

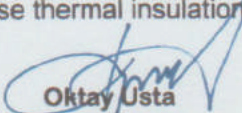
**Test Results** : The Test sample performed in accordance of to following classifications

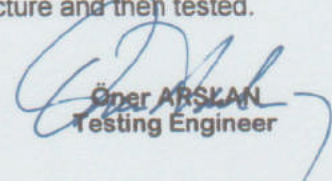
TS EN ISO 10140-2 : Rw ( C ; Ctr ) = 45,9 ( -1,3 ; -4,0 ) dB for 20 mm İzobozz (+m.s.)\*\*\*  
TS EN ISO 10140-2 : Rw ( C ; Ctr ) = 46,5 ( -1,4 ; -4,0 ) dB for 15 mm İzobozz (+m.s.)\*\*\*  
TS EN ISO 10140-2 : Rw ( C ; Ctr ) = 38,5 ( -1,5 ; -2,9 ) dB for 10 mm İzobozz (+m.s.)\*\*\*  
TS EN ISO 10140-2 : Rw ( C ; Ctr ) = 42,3 ( -1,0 ; -2,7 ) dB for 7+7 mm İzobozz (+m.s.)\*\*\*

\*This Test Report includes specific test data, results, photographic documentation and build drawings of the sample submitted for testing only and thus does not prejudice other related products.

\*\*This certificate is valid with the related test report which are presented together.

\*\*\*These thermal insulation materials were applied on the main structure and then tested.

  
Oktay Usta  
Testing Manager

  
Öner ARSLAN  
Testing Engineer