# Evidence of Performance
## Thermal transmittance

Test report
No. 12-001110-PR02
(PB-H01-06-en-01)

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| | |
|---|---|
| Client | EAGON Windows & Doors Co. Ltd.<br>923-12 Mok 1 dong<br>Yangcheong-gu<br>150-719 Seoul<br>South Korea |
| Product/Design | Insulating Glass Unit |
| Description | Eagon Vacuum triple pane glass |
| External dimensions (W x H) | 800 mm x 800 mm |
| Pane configuration | 5 / 12 / 5 / 0.25 Vacuum / 5 mm |
| Vacuum | 1,3 mPa (9,6 · $10^{-6}$ Torr) determined by the manufacturer on comparable samples manufactured in the same batch |
| Distance pieces | Distance 40 mm, diameter 0.5 mm, height 0.25 mm, Material: stainless steel 304BH |
| Gas filling | Air |
| Coating | double silver low-e coating on Pos. 5, emissivity $\varepsilon_n$ = 0.04 (measured value) |
| Special features | -- |

### Thermal transmittance

$$U_g = 0.4\ W/(m^2 \cdot K)^*$$

* The measured value according to EN 674 presents no design value .

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26.05.2012

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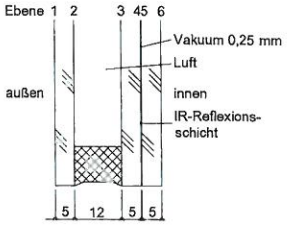
Basis
EN 674: 2011

Test report 12-001110-PR02 (PB-H01-06-de-01) dated 24 May 2012

Representation




Instructions for use
This test report serves to demonstrate the thermal transmittance $U_g$. The national regulations have to be observed for the building supervisory approval proof.

Validity
The data and results given relate solely to the described, tested object.
Testing the thermal transmittance does not allow any statement to be made on further characteristics of the present structure which could define performance and quality.

Notes on publication
The ift Guideline "Conditions and Guideline on the Use of ift Test Reports" applies.
The cover sheet can be used as an abstract.

Contents
The report contains 4 pages in total

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DAP-PL-0808.99
DAP-ZE-2008.00
TGA-ZM-16-93-00
TGA-ZM-16-93-01

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# 1 Object

## 1.1 Description of test specimen

| | |
|---|---|
| Product | Insulating Glass Unit |
| Manufacturer | EAGON Windows & Doors Co. Ltd., 150-719 Seoul (South Korea) |
| Date of manufacture | May 2012 |
| Product designation | Eagon Vacuum triple pane glass |
| External dimension (W x H) | 800 mm x 800 mm |
| Total thickness at edge | 27.9 mm |
| Total thickness in pane centre | 28.3 mm |
| Overall area-related mass | 36.6 kg/m² |
| Configuration | 5 / 12 / 5 / 0.25 Vacuum / 5 mm |
| Vacuum in cavity | -- |
| Pressure in Pa | 1,3 mPa ($9{,}6 \cdot 10^{-6}$ Torr) determined by the manufacturer on comparable samples manufactured in the same batch |
| Distance pieces | |
| Type, Manufacturer | -- |
| Construction | Distance 40 mm, diameter 0.5 mm, height 0.25 mm * |
| Material | Stainless steel 304BH |
| Gas filling | Air |
| Coating | According to measurement of **ift** |
| Type / Manufacturer | double silver low-e coating |
| Coating level | Pos. 5 |
| normal emissivity $\varepsilon_n$ | |
| Declared value | 0.042 * |
| Measured value | 0.04 |
| Spacer / edge seals | |
| Material / Manufacturer | Vacuum glass: Frit *<br>Gas gap: plastic spacer |
| corner configuration | -- |
| extra equipment | -- |
| Special features | -- |

Numbers and names of material were given by the client.

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### 1.2 Representation of test specimen

Numbers and names of material were given by the client.

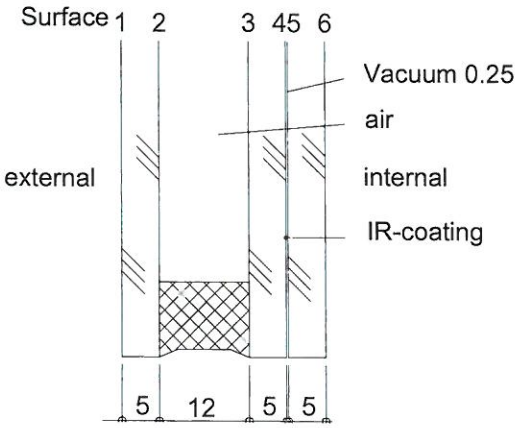


**Fig. 1** Representation

## 2 Procedure

### 2.1 Sampling

The samples were selected by the client.

| | |
|---|---|
| Number | 2 |
| Delivery | 08 May 2012 by the client |
| Registration N° | 32344/004-005 |

### 2.2 Process

Basis

| | |
|---|---|
| EN 674: 2011 | Glass in building - Determination of thermal transmittance (U value) - Guarded hot plate method |
| Boundary conditions | as required in the standard |
| Deviations | There are no deviations from the test procedure or test conditions. |

### 2.3 Test equipment

| | |
|---|---|
| Hot plate P2 | Device number 22001 |
| Position of test specimen | vertical |
| Direction of heat flow | horizontal |
| Sensor layout | according to EN 674 : 2011 |

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## 2.4 Testing

| | |
|---|---|
| Date/Period | 14 May 2012 |
| Testing personnel | Konrad Huber |

## 3 Detailed results

| Bezeichnung | | | |
|---|---|---|---|
| $A$ | measuring surface | $mm^2$ | 500 000 |
| $\Phi$ | infeeded power | W | 3.4 |
| $\theta_1$ ($T_1$) | average surface temperature on warm side | ℃ | 17.6 |
| $\theta_2$ ($T_2$) | average surface temperature on cold side | ℃ | 2.5 |
| $\theta_m$ ($T_m$) | average temperature | ℃ | 10.1 |
| $\Delta T_m$ | average temperature difference | K | 15.1 |
| $R$ | thermal resistance | $(m^2 \cdot K)/W$ | 2.21 |
| $\varepsilon_n$ | normal emissivity on interior side of surface | - | 0.89 |
| $\varepsilon$ | corrected emissivity on interior side of surface | - | 0.837 |
| $h_i$ | inside heat transfer coefficient | $W/(m^2 \cdot K)$ | 7.69 |
| $U_g$ | thermal transmittance | $W/(m^2 \cdot K)$ | 0.4 (0.42) |

**ift** Rosenheim
26. Mai 2012

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as of November 2004

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- The original significance and the purpose of the results must be presented in a clear manner.
- Notes and conclusions must not be inserted in or added to the text in a misleading manner

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- Term of validity of test documents (if specified).

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The **ift** will not disclose test results to third parties even after publication of these results by the customer. Notwithstanding this principle, the PÜZ[1])-bodies are obliged to publish general construction supervisory test certificates in a suitable manner. This is done by publication on the **ift** website: www.ift-rosenheim.de.

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D_ID 305 / 04-11

[1]) approved national testing laboratory, inspection and certification body