

# Durability of a Blind in Laminated-Insulation Glass

Test report no.: 12 - 003115 - PR05

(PB-H01-09-de- 01)



## Certificate

Client: GLASTECH Produktions- and Verfahrenstechnik GmbH

Bahnhofstr. 34

3363 Hausmening

Austria

Product/ type of construction	laminated insulating glass with integrated lamella between glass Panes
Nomenclature	Eurotherm IGS
Manufacturer	Glastech Productions- and Verfahrenstechnik GmbH
Dimension	sample : 1200 X 1200 mm <sup>2</sup>
Coating	Climagaurd Premium T
Dense materials	
Control	Eclipse Global Pvt. Ltd.

Eurotherm IGS corresponds to requirements of **ift** guidelines VE07/2, paragraph 5.2 on the durability with UV-radiation



**Sample: 20,000 cycles.**

**ift** Rosenheim

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## Principle

**ift** guidelines VE 07/2 : 2005-08 laminated-insulation glass with moving sun protection systems integrated in-between slab area.

## Instructions for use

This test report serves for certification of the durability of a laminated drop constructed in between area of slab from laminated – insulating glass.

## Validity

The named data and results refer exclusively to the tested and described objects.

The testing of durability permits no testimony about further performance and quality decisive characteristics of the present construction.

## Publication instructions

The **ift**-bulletin is valid"conditions and instructions for use of **ift**-test documentation"

The cover page can be used as a summary.

## Content

The certification encloses in all 6 pages

1. Subject matter
2. Execution
3. Individual results
4. Evaluation

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### 1. Subject matter

#### 1.1. sample (all dimensions in mm)

Component	laminated Insulating glass, with integrated lamella drop
Nomenclature	Eurotherm IGS*
Installation situation	vertical
Sample	
Dimensions of vitrification (BxH)	1200mm X 1200 mm
Construction	6 ESG - 29 - 6 ESG low -e*
Coating	ClimaGaurd Premium T*
Coating level	position 3*
Volume in %	90*
Spacer	
Material/manufacture	Aluminium SZR 29 Fa. Eclipse Global Pvt. Ltd. *
Corner design	hidden corner angle with butylising and gas proof soldered plate
Slat drop in SZR	
Type /manufacturer	15mm Alu brush finished, Fa. Eclipse Global Pvt. Ltd.*
Lamella width	15mm*
Lamella distance	12.5mm*
Pul cord	Polyester Yarn --Braided polyester yarn mesh with polyester fibre, thermally treated *polyester yarn, thermally treated
Conducting cord	Polyester yarn thermally fixed
Motor	Motor with planetary drive, electric supply 24 VDC inclusive of Encoder*
Type/manufacturer	RE Max /Maxon*
Change mechanism	separated turn mechanism, end switch above and below, incl sp. Cord storage in bearing bracket
Type/manufacturer	Eclipse global Pvt. Ltd.*
Control	Eclipse*
Manufacturer	Eclipse Global Pvt. Ltd.*

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The description bases itself on the inspection of sample in **ift**. Article nomenclature number as well as material data is data of the client. (further manufacturer data are characterised with\*). The exact product nomenclature and details of construction are furnished by client.

## 2 Execution

### 2.1 Trial

The selection of trial takes place through the client

Quantity	3
Delivery	18.12.2012 through the client
Registration number	33805

### 2.2 Procedure

#### Basis

**ift** guidelines VE07/2:2005-08 laminated –insulating glass with moving sun protection system integrated in disc inner area, chapter 5, testing of durability of moving, integrated components

Deviations There are no deviations of test procedure respectively of test conditions

### Summary

The sample is continuously irradiated and simultaneously checked as repeat service. The irradiation takes place with Osram Ultra – Vitalux lamps, at a single jet performance of approx.  $(730 \pm 80) \text{ W/m}^2$ . The irradiation duration is 2,000 h. The surface temperature of irradiated side is set at  $(70 \pm 5)^\circ\text{C}$  during the irradiation period of 2000 h become 20,000 movement cycles are traversed.

### 2.3 Test execution

Date /period	08 January 2013 to 26 March 2013
Tester	Dipl-Ing (FH) Stefan Hehn

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### 3. Results

Corrsponding to test plan of ift guidelines VE07/2:2005-08 the samples undergo a receiving inspection, an assessment of after approx. 10,000 cycles and an end assessment after 20,000 cycles.

Table 1 visual assessment iof sample

Nos.	criteria	Principle/requirement	Entry test	10,000 cycles	20,000 cycles
1	Damage to glass surface Cracks etc.	Guideline for assessment of visual quality of insulated glass	i.O.	i.O.	i.O.
2	Glass breakage	Visual assessment	i.O.	i.O.	i.O.
3	Damage to the coating, abrasion on coating	Visual assessment	n.Z	n.Z	n.Z
4	Lamella remain hanging under one another	Visual assessment	i.O.	i. O	i.O.
5	Lamella bend haphazardly	Nos. is 2% of total number of Lamella	i.O.	i.O.	i.O.
6	Awry lift of fixture	Deviation from horizontal $\leq 6\text{mm/m}$	i.O.	i.O.	i.O.
7	Warpage of lamination (L)	$L_{\max} \leq \pm 5 \text{ mm}$	i.O.	i.O.	i.O.
8	Dwell angle of Lamella $\Delta\alpha_{\max} \leq 10$	Final position 1 above (ascend) Final position 1 below (ascend) Final position 2 above (descent) Final position 2 below (descent)	$\alpha$ 26° 28° 34° 36°	$\alpha$ 25° 28° 32° 34°	$\alpha$ 24° 27° 32° 34°
9	Deviations from reference velocity $\Delta V < 20\%$	Measurement of travel time Ascend time: Descent time:	0:55 0:52	0:49 0:51	0:50 0:50
14	Operation power during ascend	Measurement	n.z.	n.z.	n.z.
15	Length change of drop	Allowed change 1% of total length of drop Maximum 20mm	Band overlies on spacer	Band overlies on spacer	Band overlies on spacer
16	Touching of lamination on spacer	Visual assessment, discoloration of lamination end, abrasion traces and pollution in SZR	i.O.	i.O.	i.O.

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17	torn conducting cord	Visual assessment	i.O.	i.O.	i.O.
18	Torn pull cord	Visual assessment	i.O.	i.O.	i.O.
19	Aborted parts inSZR	Visual assessment	i.O.	i.O.	i.O.
20	Stoppage of motor	Visual assessment	i.O.	i.O.	i.O.
21	Malfunction of deviations, gear, mechanism	Visual assessment	i.O.	i.O.	i.O.
22	Dysfunction of end cutoff	Visual assessment	i.O.	i.O.	i.O.
23	Breakdown of control	Visual assessment	i.O.	i.O.	i.O.
24	Failure of control	Visual assessment	i.O.	i.O.	i.O.
25	sound development during activation of construction	Clear change of sound development	i.O.	i.O.	i.O.
26	Discoloration of Lamella end through abrasion	Visual assessment	i.O.	i.O.	i.O.
27	abrasion traces in SZR	Visual assessment	i.O.	i.O.	i.O.
28	Pollution in SZR e.g. Butyl on the lamination	Visual assessment	i.O.	i.O.	i.O.

i.O. = in order (no dysfunction determined)

n.z. = not applicable to this sample

-- = has not been determined

### 4. Evaluation

The demands on the guidelines VE 07 / 2 acc. to para 5.2 are fulfilled by train sample. The trial sample is fully functional after 2,000 h UV-Radiation with 20,000 motion cycles.

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