

Insulating glass unit with movable sun protection systems integrated in the cavity

Evidence for evaluation of the fitness for use of insulating glass unit (IGU) with integrated movable installations

Inhalt

1	Scope	5
2	Relevant Standards and Guidelines	6
3	Definition of Terms	8
4	Requirements	8
5	Fitness for use of insulating glass unit.....	9
5.1	Moisture absorption.....	11
5.1.1	Test specimen.....	11
5.1.2	Result.....	11
5.2	Gas leakage rate of insulating glass unit.....	11
5.2.1	Test specimen.....	12
5.2.2	Result.....	13
5.3	Fogging	13
5.3.1	Test specimen.....	14
5.3.2	Result.....	14
6	Test of mechanical durability of movable, integrated installations.....	15
6.1	Test with higher temperature load.....	18
6.1.1	Test specimen.....	18
6.1.2	Test.....	18
6.1.3	Results	18
6.2	Test with UV partial radiation	19
6.2.1	Test specimen.....	19
6.2.2	Test	19
6.2.3	Results	21
7	Evaluation criteria.....	21
7.1	Function evaluation of insulating glass unit.....	21
7.2	Function evaluation of installation	21
7.2.1	Permissible deviation during incomplete turning.....	23
7.2.2	Deviation from squareness	23
7.2.3	Deflection of slats and cover profile	24
7.2.4	Closing angle	24
7.2.5	Reference speed of power-operated systems	25
7.2.6	Operating forces.....	25
7.2.7	Elongation of installation and limit stop.....	26
7.2.8	Visual evaluation of exterior blinds.....	26
7.2.9	Evaluation of roller blind and pleated blinds.....	28
8	Extended field of application.....	29
8.1	Influence of temperature and UV radiation.....	29
8.2	Glass thickness and pane configuration.....	29
8.3	Turning systems	29

9	Reports.....	30
	Literature.....	30
Annex A	Building-physical Characteristics.....	31
A 1	Determination of g value.....	31
A 1.1	Calorimetric measurement.....	31
A 1.1.1	Test specimen.....	31
A 1.1.2	Result.....	32
A 1.2	Calculation of g value according to DIN EN ISO 52022-3.....	32
A 1.2.1	Result.....	33
A 2	Determination of room-side surface temperatures.....	33
A 2.1	Calorimetric measurement.....	33
A 2.1.1	Test specimen.....	34
A 2.1.2	Result.....	34
A 2.2	Surface temperatures according to DIN EN ISO 52022-3.....	34
A 3	Thermal transmittance U_g	35
A 4	Measurement of airborne sound insulation.....	35

Foreword

After approx. 10 years of testing experience and evaluation of integrated systems in the cavity of insulating glass unit (with ift guideline VE-07), adjustments of the testing procedure have become necessary. Compared to the previous edition VE-07/2 (2005 edition), changes have been made to the test cycles and test specimen sizes. This was done with the aim of adapting the testing and evaluation even more realistically to practical construction requirements for many years of trouble-free use. Changes to accompanying standards and regulations were also taken into account. This edition replaces the version VE-07/2 (2005 edition) and supplements its testing standards for future construction projects. The installation of sun protection systems in the closed cavity of insulating glass unit results in a product that must meet the requirements of both an insulating glass unit and a sun protection/daylight system.

This ift guideline serves for the holistic assessment of the fitness for use of insulating glass unit with integrated installations for testing and evaluation of the system in the laboratory.

Methods for the determination of building-physical characteristics are given in Annex A. Regarding the static design of the glass structures, the DIN 18008 standards series in the currently valid version applies.

The procedure described in this guideline is based on the findings of the research project "Integral Evaluation of Innovative Building Envelopes", which was carried out at ift Rosenheim in the years 2000 to 2003, as well as on existing experiences from the use of such systems up to 2017.

This ift guideline replaces the ift guideline VE-07/2 of August 2005.

Compared to the January 2018 version, this November 2018 edition contains only one clarification to the test procedure in Table 1 and Figure 2, to bring them in sync with the provisions in Section 6.2.

1 Scope

This guideline determines the verification method for evaluation of the usability of insulating glass unit (IGU) with integrated movable installation in the cavity. The systems can be moved motor-operated or manually, e.g.

- Venetian blind/exterior blinds
- Adjustable slats
- Roller blinds
- Folding blinds

The guideline does not apply to insulating glass unit with a large cavity without movable installation.

The scope is defined for vertical glazing on windows, doors, facades, conservatories and internal partitions as well as for horizontal glazing. For internal partitions, the reduced effects in the interior must be taken into account with regard to the design.