



European Technical Assessment **ETA 13/0306** of 14/12/2015

I General Part

Technical Assessment Body issuing the ETA	VTT Expert Services LTD
Trade name of the construction product	Balcony and terrace glazing system KLAASIUM
Product family to which the construction product belongs	Balcony and terrace glazing system
Manufacturer	Malmerk Klaasium OÜ Valdeku 132 11216 Tallinn Estonia
Manufacturing plant	Malmerk Klaasium OÜ Valdeku 132 11216 Tallinn Estonia
This European Technical Assessment contains	10 pages including 1 Annex which form an integral part of this assessment
This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of	European Assessment Document EAD 020002-00-0404, edition September 2015.
This ETA replaces	ETA 13/0306 issued on April 17, 2013

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II Specific Part

1 Technical description of the product

The balcony and terrace glazing system consist of polyester powder painted or anodised horizontal aluminium frames and railings, stainless steel hinges, plastic rollers, toughened glass panes and sealing strips. The system has no vertical frames. The system may also include external sills if requested. Description of components and their types is in Annex 1.

When the system is used as balcony glazing, it is fixed to balcony railing and roof. When the system is used in terraces it is fastened to floor and roof constructions. Glass panes are fastened into aluminium glazing bead with rivets and adhesive. Glass units can one by one be glided laterally and turned inwards so that the balcony front is free from glazing. Installation guide by the manufacturer gives instructions and restrictions regarding the number of glass units which can be in open position besides each other, and also gives guidance of additional reinforcement in case of excessive loads.

Glass pane width (without glazing bead) is 750 mm or less. Thickness of the glass panes is chosen to be 6, 8 or 10 mm depending on the glass pane size and wind load resistance requirements. Maximum height of the glass pane is about 2960 mm for wind load class 3.

The upper profile is attached to the ceiling through a profile or to the overhang with mounting brackets. The lower profile is attached with mounting brackets or through the bottom of the profile to the balustrade structure or to the floor. Fastening of the glazing system into balcony railing and roof shall be done according to the type of the surrounding construction and instructions of the manufacturer.

Fastening screws or anchors for assembly of the system into balcony parapet or railing and roof construction are defined in the installation instructions but are not covered by this ETA. Balcony railings are not covered by this ETA.

2 Specification of the intended uses in accordance with the applicable EAD

Intended uses

The balcony glazing is used to protect balcony or terrace interior from rain, snow, wind and dirt. The glazed balcony is not warm or half warm space. It is not totally water tight or air tight.

The system can be fastened into concrete, brick, steel, aluminium or timber substrates.

The system is not intended to act as barrier against falling. In case of risk of falling, a separate barrier is needed that shall fulfil local requirements concerning safety.

Working life and durability

The provisions made in this ETA are based on an assumed working life of the balcony glazing system of 25 years¹.

Design

Glass pane thickness and pane sizes are chosen case by case based on structural design calculations made by the manufacturer who has design tables or software for the purpose. In the design, local regulations concerning wind pressure and safety shall be taken into account. This European technical assessment is based on the assumption that the design has been made correctly according to the regulations valid on the building site.

Execution of construction works

The completed building (the works) shall comply with the building regulations (regulations on the works) applicable in the Member States in which the building is to be constructed. The procedures foreseen in the Member State for demonstrating compliance with the building regulations shall also be followed by the entity held responsible for this act. An ETA for a balcony glazing system does not concern this process in any way.

¹ This means that it is expected that when this working life has elapsed, the real working life may be, in normal use conditions, considerably longer without major degradation affecting the essential requirements of the works. The indications given as to the working life of a Klaasium balcony glazing system cannot be interpreted as a guarantee given by the producer or the assessment body. They should only be regarded as a means for the specifiers to choose the appropriate criteria for balcony glazing systems in relation to the expected, economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

Table 1. Basic requirements for construction works and essential characteristics

Basic requirement and essential characteristics	Performance
BWR 3. Hygiene, health and the environment	
Content, emission and/or release of dangerous substances	Clause 3.1
Ventilation and dampness	Clause 3.1
BWR 4. Safety and accessibility in use	
Resistance to wind load	Clause 3.2
Impact resistance	Clause 3.2
Properties of glass panes and other parts	Clause 3.2
<ul style="list-style-type: none">• Corrosion resistance	
<ul style="list-style-type: none">• Resistance to racking	
<ul style="list-style-type: none">• Resistance to static torsion	
BWR 5. Protection against noise	No performance assessed

3.1 Hygiene, health and environment, BWR 3

Dangerous substances

According to the written declaration of the manufacturer, KLAASIUM balcony glazing system do not contain other harmful or dangerous substances listed in EOTA TR 34 dated May 2014.

In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

Ventilation of balcony as dampness control

The air gaps between the glass panes ensure air permeability of the glazing, which diminish risk of dampness or condensation. Width of the air gaps between the glass panes are 2-4mm.

3.2 Safety and accessibility in use, BWR 4

Resistance to wind load

Maximum height of opening / glass unit mm	width of glass units mm	Thickness of glass pane mm	Test pressure ¹ Pa	Relative frontal deflection	
				negative pressure	positive pressure
2000/1880	750/300	6	1200	0,05	0,04
2500/2380	700	8	1200	0,05	0,05
3100/2960	700	10	1200	0,05	0,06

¹ Pressure value P1, EN 12211, defined by the manufacturer

Impact resistance

The classification of the impact resistance of Klaasium balcony glazing system is class 1 for 6 and 8 mm glass pane (drop height 200 mm) and class 3 for 10 mm glass pane (drop height 450 mm).

Classification is made according to EN 13049.

Properties of glass panes and other parts

UV-radiation resistance

Changes with dimensions were between (0,0 - +0,6 %) and changes of weight were between 0,0 - +0,9. The plastic parts of the glazing system did not show visually changes except following parts:

Lower opening hole clip, slight change to black

Ball bearing roller, slight change to white

Weather strip, clear change to yellow

Resistance to racking

KLAASIUM balcony glazing 6 mm (height of opening 2000 mm) and 8 mm (height of opening 2500 mm) resists racking load of 250 N.

KLAASIUM balcony glazing 10 mm (height of opening 3100 mm) resists racking load of 800 N.

Determination of resistance to racking of an open glass pane expressed as any change in function after the tests. No maximum or residual deformations were determined according to EN 14608.

Resistance to static torsion

KLAASIUM balcony glazing 6 mm (height of opening 2000 mm) and 8 mm (height of opening 2500 mm) resists static torsion of 200 N.

KLAASIUM balcony glazing 10 mm (height of opening 3100 mm) resists static torsion of 350 N

Determination of resistance to static torsion of an open glass pane expressed as any change in function after the test.

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

For the products covered by this ETA the applicable European legal act is: Decision 96/580/EC

The system to be applied is: 3.

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD.

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at VTT Expert Services Ltd.

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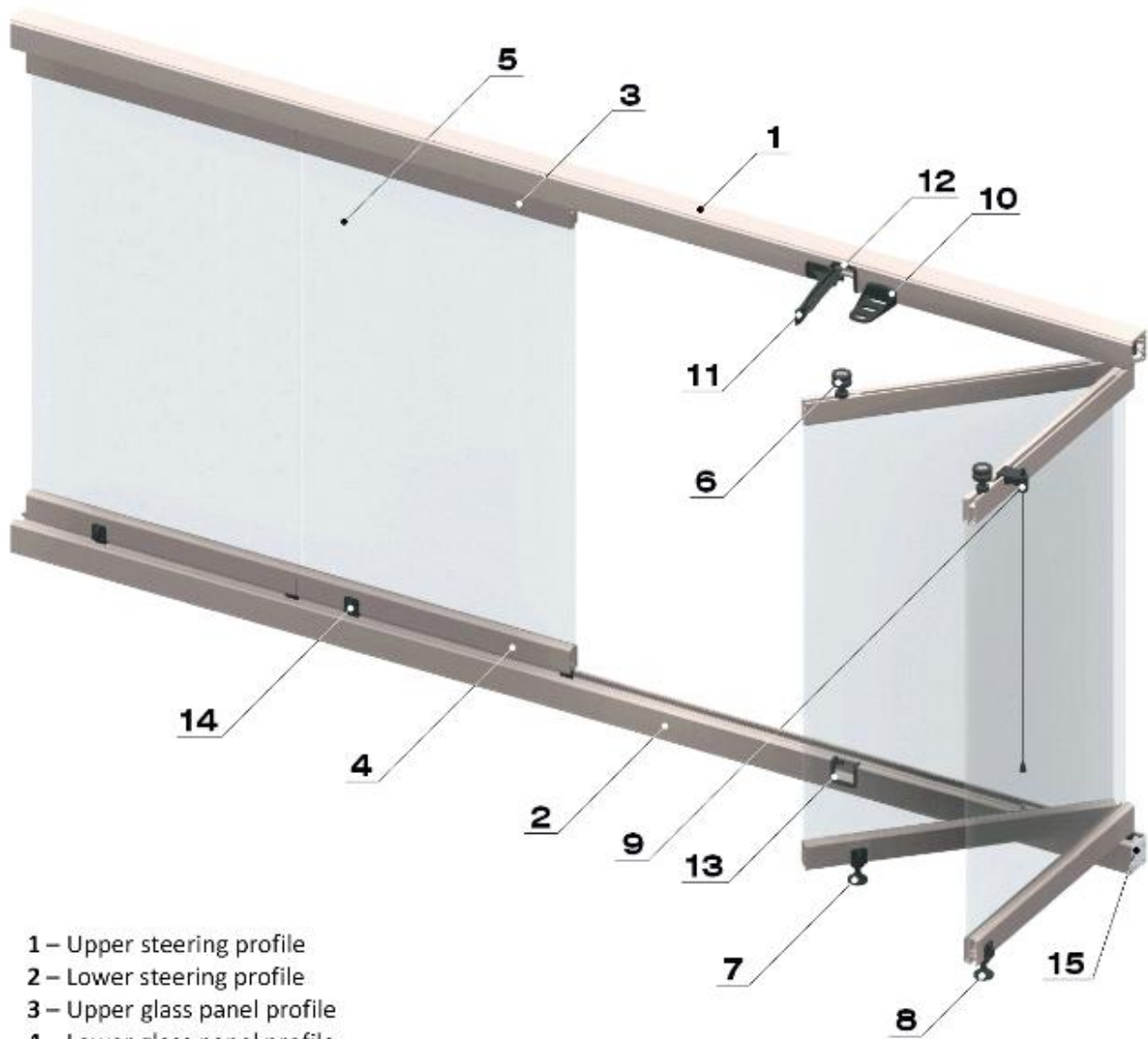


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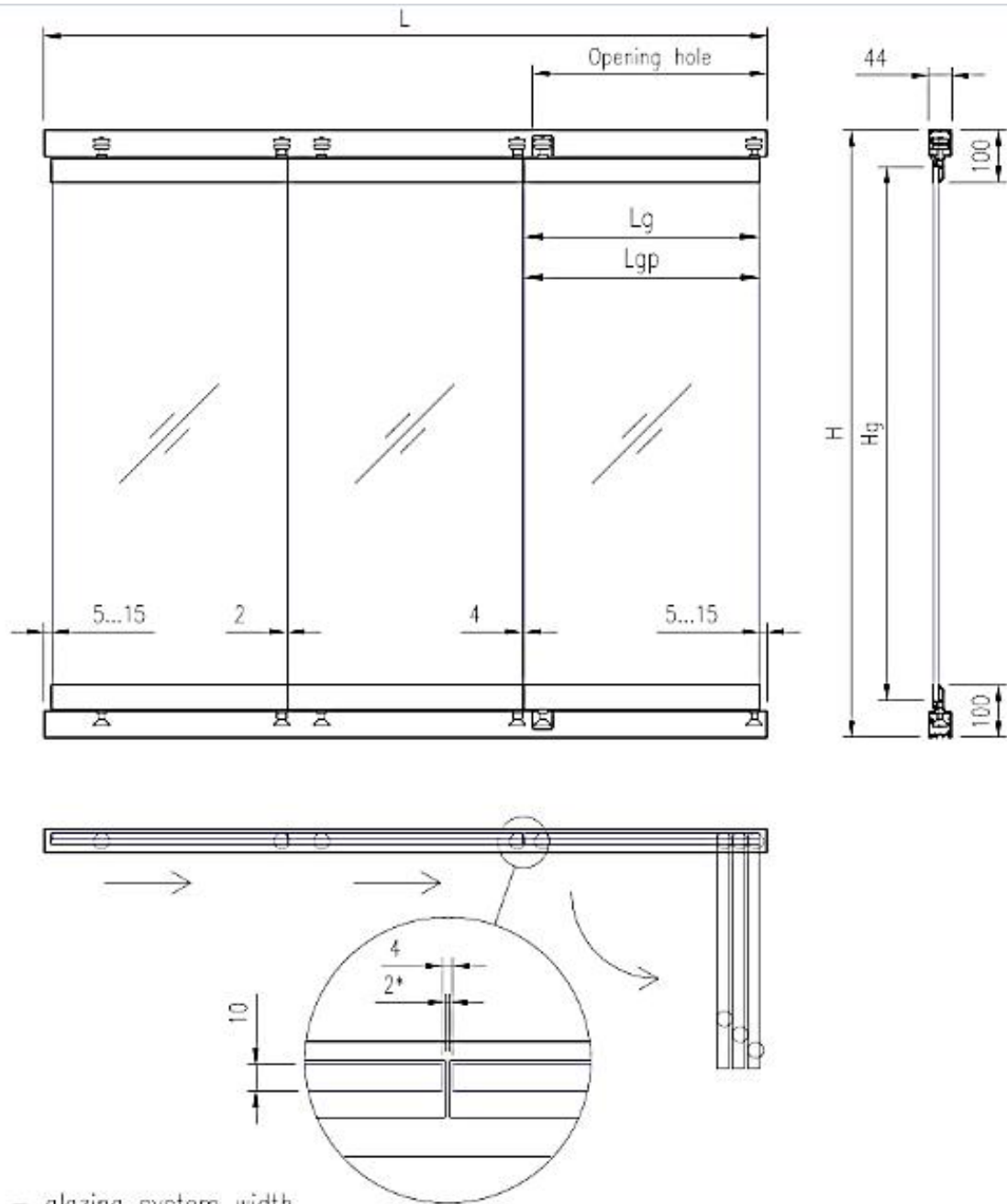
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Product Manager

Figure1. Main components of the balcony glazing system (10 mm glass pane)



- 1 – Upper steering profile
- 2 – Lower steering profile
- 3 – Upper glass panel profile
- 4 – Lower glass panel profile
- 5 – 10 mm tempered glass
- 6 – Upper ball-bearing wheel
- 7 – Lower wheel
- 8 – Lower lock
- 9 – Children safety lock
- 10 – Ventilation position holder
- 11 – Wheel guide
- 12 – Upper opening-hole clip
- 13 – Lower opening-hole clip
- 14 – Opening handle
- 15 – End plate

Figure 2. Example of dimensioning 10 mm glass pane system



- L - glazing system width
 L_g - glass width
 L_{gp} - glass profile width
 H - glazing system height
 H_g - glass height

$$L_g = L_{gp} - 2 \text{ mm}$$

$$H_g = H - 140 \text{ mm}$$

* gap between first opening and second glass profile should be at least 2 mm.

Figure 3: Section view of locking side rollers and opening side rollers

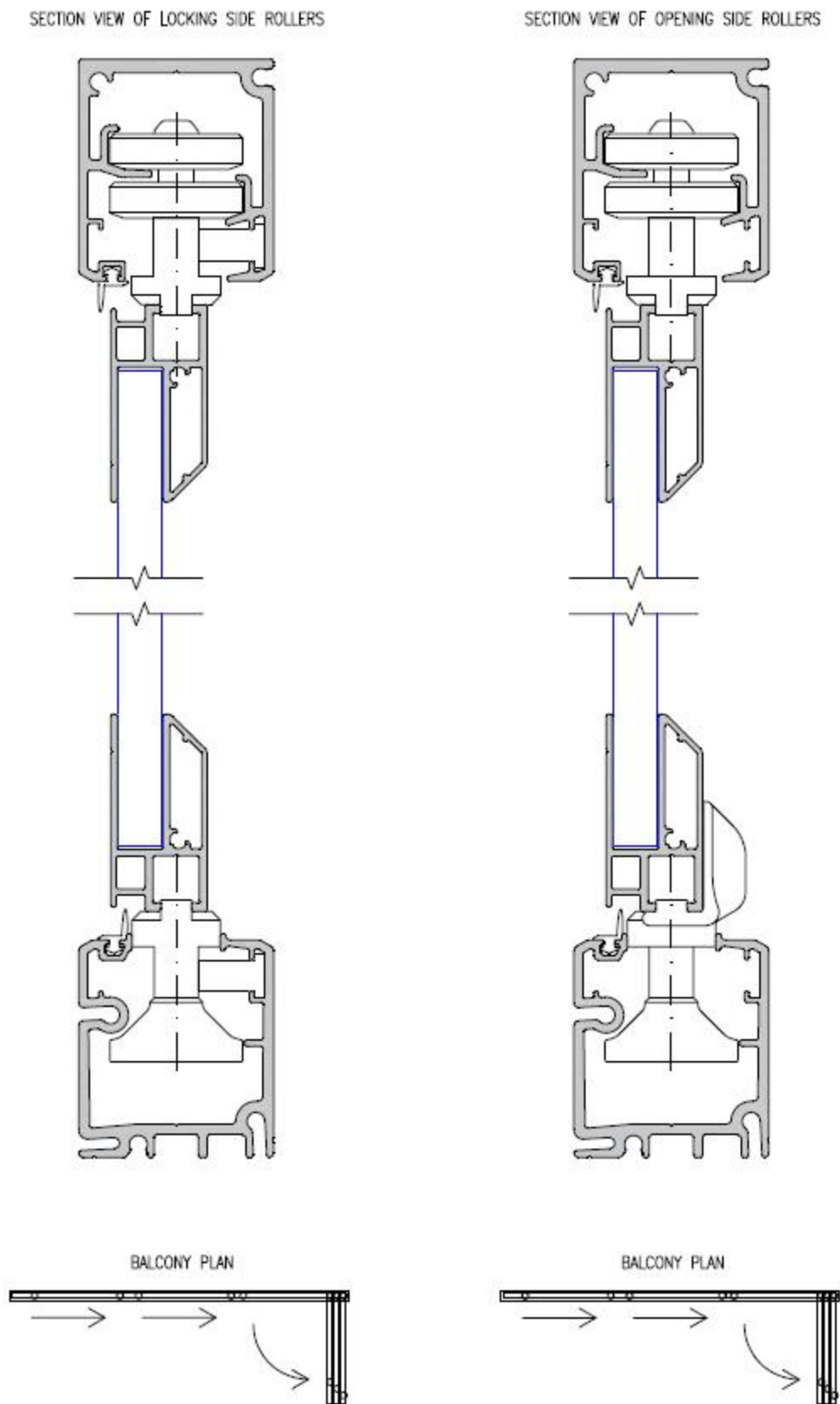


Figure 4. Main dimensions of the 10 mm glass pane system

