



European Technical Assessment + Evaluation report

ETA 17/0040 of 23/2/2017

I General Part

Technical Assessment Body issuing the ETA	VTT Expert Services LTD
Trade name of the construction product	Todocristal balcony and terrace glazing system
Product family to which the construction product belongs	Balcony (and terrace) glazing system without vertical frames
Manufacturer	Allglass Confort Systems S.L. Poligono Industrial "Alhaurin de la Torre" Fase 1 Pasco de la Hispanidad, nave 55 T4 B60 29130 Malaga
Manufacturing plant	Allglass Confort Systems S.L. Poligono Industrial "Alhaurin de la Torre" Fase 1 Pasco de la Hispanidad, nave 55 T4 B60 29130 Malaga
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 January 2016.

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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 657mm or less. Thickness of the glass panes is 10 mm. Height of the pane can be chosen depending on the glass pane width and wind load resistance requirements. Maximum height of the glazing system is 1800 mm for wind load class 5 and 3000 mm for wind load class 3.

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.

Assessment

The manufacturer delivered technical specification of the product that corresponds to the scope of EAD 020002-00-0404.

Conclusion

Requirements set in clause 1.1 of EAD 020002-00-0404 are met.

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.

Assessment

Information was given by the manufacturer regarding intended uses, substructure, design and installation of the Todocristal balcony glazing system.

Conclusion

Requirements set in clause 1.2 of EAD 020002-00-0404 are met.

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 Todocristal 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	
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

Ventilation and dampness

The air vent slots between the vertical edges are 10 mm and between the adjacent glass panes 1,5 mm to ensure the sufficient ventilation of the balcony and prevents dampness or condensation.

Assessment

The air vent slots ensure the sufficient ventilation of the balcony and prevents dampness or condensation.

Conclusion

Requirements set in clause 2.2.1 and 2.2.2 of EAD 020002-00-0404 are met.

3.2 Safety and accessibility in use, BWR 4

Resistance to wind load

Glass pane thickness and pane size are chosen case by case based on structural design calculations made by the manufacturer. Results of the tested samples are given below.

Maximum height of system / glass unit mm	width of glass units mm	Thickness of glass pane mm	Test pressure ¹ Pa	Relative frontal deflection	
				negative pressure	positive pressure
1800/1655	657	10	2000	0,02	0,02
3000/2855	657	10	1200	0,04	0,03

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

Assessment

Resistance to wind load has been tested according to EN 12211.

Conclusion

Requirements set in clause 2.2.3 of EAD 020002-00-0404 are met.

Impact resistance

The classification of the impact resistance of Todocrystal balcony glazing is Class 3, classified according to EN 13049 (drop height 450 mm).

Assessment

Impact resistance has been tested according to EN 12600 and classified in accordance with EN 13049.

Conclusion

Requirements set in clause 2.2.4 of EAD 020002-00-0404 are met.

Properties of glass panes and other parts**UV-radiation resistance**

Changes of dimensions in tests were between -0,2 % - +0,3% and changes in the weight - 0,7 - +0,1%. The plastic parts of the glazing system did not show visually changes except on the turning mechanism (clear change to white) and on the bubble strip (clear change to yellow).

Assessment

UV-radiation resistance has been tested according to EN ISO 4892-2, cycle A, for 1000 h.

Conclusion

Requirements set for UV-radiation resistance in clause 2.2.5 of EAD 020002-00-0404 are met.

Corrosion resistance

The metallic components have at least the moderate corrosion resistance in mild environments.

Assessment

Corrosion resistance of the metallic components has been evaluated based on the material information delivered by the customer. Aluminium profiles EN AW-6063 T5, Stainless steel e.g. AISI 304. All the zamak parts: a treatment of zinc anti corrosion
All the profiles and the arm: Coating Polyester powder hermosetting or anodised
All the polyamide parts are reinforced with fiberglass

Conclusion

Requirements set for Corrosion resistance in clause 2.2.5 of EAD 020002-00-0404 are met

Resistance to racking

Todocrystal balcony glazing 10 mm (height of system 1800 mm and 3000 mm) resists vertical point load of 800 N (class 4 according to EN 13115).

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.

Assessment - Resistance to racking load

The tests were conducted according to EN 14608. The test results are applicable up to the tested width of glass panes with same height. No changes in function were observed after the test of resistance to racking of an open glass pane. No maximum or residual deformations were determined according to EN 14608.

Conclusion

Requirements set for Resistance to racking load clause 2.2.5 of EAD 020002-00-0404 are met.

Resistance to static torsion

Resistance of static torsion has not been assessed due the fact that all the four corners are always supported at a time or in the other case when open, two corners at vertical line are not supported and the other two supported at vertical line in use.

Overall conclusion

Assessment has been conducted in accordance with EAD 020002-00-0404.

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.

Documentation

Test reports presented by the manufacturer and other material used as basis for the assessment are presented in Annex 2.

Documents available to the notified body responsible for the evaluation of constancy of performance (AVCP) include:

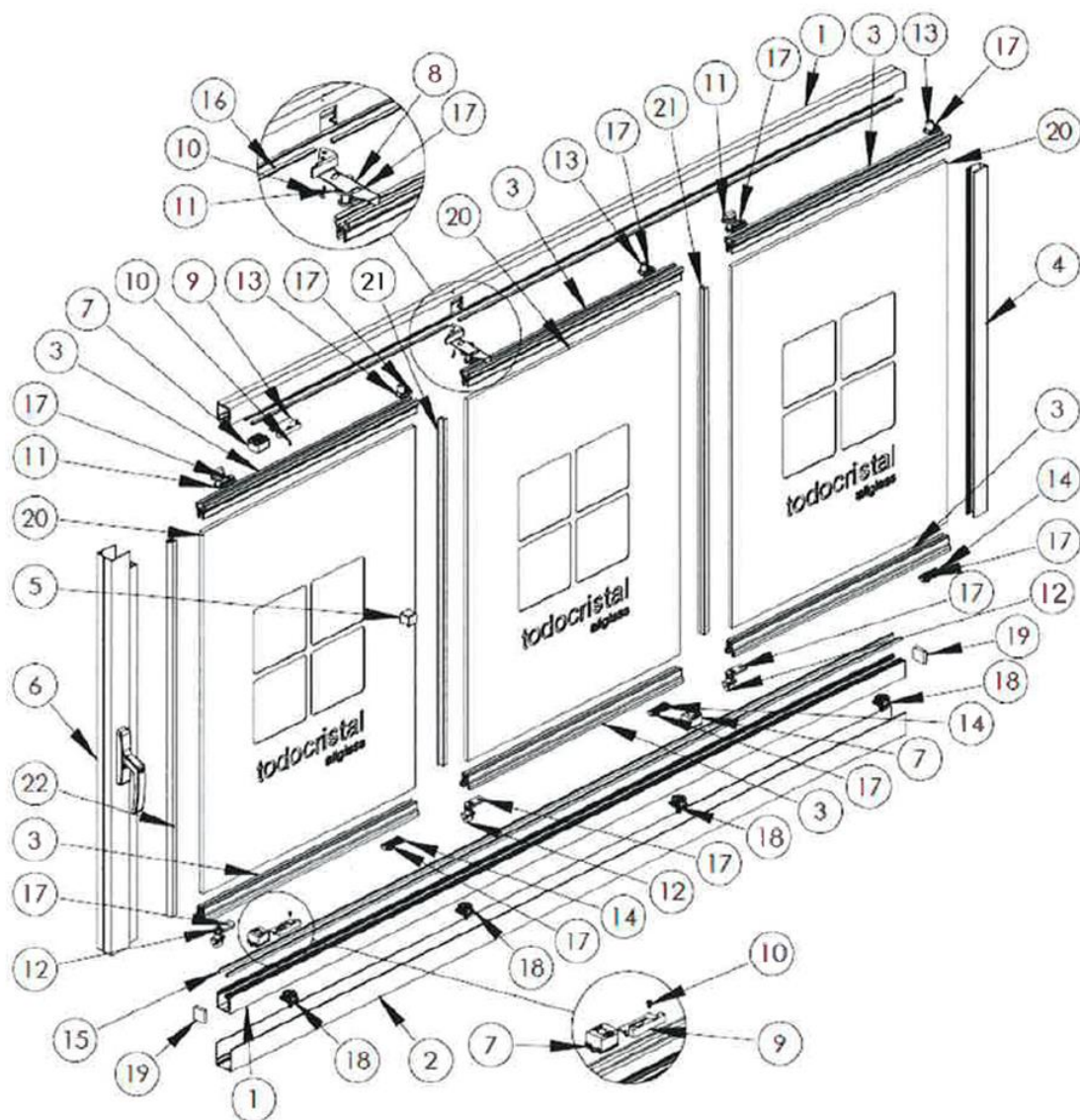
- - The ETA
- - Basic manufacturing process
- - Product and materials specifications
- - Control plan

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Illustrative view of the balcony glazing system



Main components of the balcony glazing system

Number	Reference	Description	Material
1	AL0001	Track	Aluminium
2	AL0005	Compensator channel	Aluminium
3	AL0210	Profile	Aluminium
4	AL0007	"U" Profile	Aluminium
5	C0001	Glass knob	Glass
6	C0006	Side lock	Aluminium, zamak, stainless steel, POM
7	D0002	Pivot	Polyamide
8	D0009	Right arm	Stainless steel
9	D0010	Turning mecanism	Polyamide
10	D0012	Screw DIN 7982 3,5x9,5	Iron
11	P0001	Turning top guide	Zamak, Polyamide
12	P0002	Turning bottom guide	Zamak, Polyamide
13	P0003	Top guide	Zamak, Polyamide
14	P0004	Bottom guide	Polyamide
15	S0001	Sliding surface	Technical plastic
16	S0003	Brush	Brush
17	S0009	Screw DIN913 M6x12 mm	Stainless steel
18	S0010	Compensator screw	Zamak
19	S0019	Track side cover	POM
20	S2510	Glass	Tempered glass
21	RD3110	Double hard strip	PVC
22	FB3010	Bubble strip	PVC

ANNEX 2
MATERIAL USED AS BASIS FOR THE ASSESSMENT

Ref. No.	Author or institution	Report No.	Date	Title / Issue
1	VTT Expert Services Ltd	VTT-S-04173-14	19.9.2014	Determination of wind load resistance, vertical point load and impact resistance of Frameless Balcony and Terrace Glazing System / Todocrystal 1800 mm
2	VTT Expert Services Ltd	VTT-S-04174-14	19.9.2014	Determination of wind load resistance, vertical point load and impact resistance of Frameless Balcony and Terrace Glazing System / Todocrystal 3000 mm
3	VTT Expert Services Ltd	VTT-S-05120-14	3.11.2014	Artificial weathering of plastic and aluminium components of Frameless Balcony Glazing System Todocrystal by the expose of Xenon Arc+water spray.