**Smart systems ltd**

l10 windows/rooflights/screens/louvres

330 aluminium windows

EcoFutural Windows

**BSI Kitemarked to PAS24. KM81580**

Designed for use as fixed lights, open-out casement, tilt and turn (**TT**), single or double sash side-hung open in, tilt in, horizontal or vertical pivot and tilt and slide windows, internally beaded, for domestic and light / medium / heavy commercial applications.

Thermal breaks are formed with polyamide strips PA 6.6 25 reinforced with glass fibre, fitted between aluminium extrusions. All profiles are extruded from aluminium alloy 6060/6063 T5/T6 and comply with the recommendations of BS EN 12020-2; 2001/BS 755-9: 2001. Profiles can be Electrostatic powder coat finished in a range of RAL colours to APA Qualicoat guidelines with the option of BI-colour, different internal and external colours. Other finishes include anodised in satin with EWAA/EURAS-Qualanod quality label. Powder-coated woodstructure finishes are available on request. All opening vents are hung on non-corrosive hardware and fitted with espagnolette shoot bolt/multi-point locking mechanisms.

Restrictor stays are fitted on all vent openings, manufactured from material meeting the requirements of BS 4873.

Glazing conforms to the requirements of BS 6262 and Part ‘N’ of the Building Regulations for both thickness and type.

Internal beads and gaskets will accommodate 4mm to 51mm units fixed lights, 13mm to 60mm vents.

Open out casement with 24, 25, 28, 29, 32 or 33mm glazing only, when using outer frame EF910.

Windows are manufactured according to customer requirements from a range of standard profiles and are designed to incorporate a range of vent openings and various options, therefore it is advisable to contact Smart Systems technical design department early in the design process.

Product tested to BS6375:Part 1. Weathertightness classification:

Air Permeability – **TT** = Class 4 600Pa. **Open out** Top hung = Class 3 600Pa, Side hung = Class 4 600Pa

Watertightness – **TT** = Class E 900Pa. **Open out** Top hung = Class 8A 450Pa, Side hung = Class E 1050Pa

Wind resistance – **TT** = Class AE 2400Pa. **Open out** Top hung = Class A5 2000Pa, Side hung = Class AE 2400Pa

Windows are manufactured to the required design to limitations as stated within technical manuals (subject to location).

Subject to agreement it is possible to exceed these limitations depending on design criteria, contact Smart Systems Technical Department for details.

Consult Smart Systems Ltd technical literature for details. Smart Systems Ltd can also provide design and specification guidance and it is recommended that they are consulted early in the design process.

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**Product reference:** EcoFutural Windows

**Materials:** All profiles are extruded from aluminium alloy 6060/6063 T5/T6 and comply with the recommendations of BS EN 12020-2; 2001/BS 755-9. Thermal breaks are formed with polyamide strips PA 6.6 25 reinforced with glass fibre sections capable of withstanding temperatures up to 200°C for over painting.

**Performance**: Product tested to BS6375: Part 1. (Air Permeability to Class 4 600Pa. Watertightness to Class E 900Pa pa. Wind resistance to – Class E 2400Pa). See above.

**Exposure**: Design Wind Pressure **TBA**

**Thermal**: All windows, in conjunction with a suitable glazing specification, to achieve an average project U-value to meet the current requirements of the approved Building Regulation Document L1/L2 for England and Wales. Target window U-value **TBA**

**Structure:** All structural profiles to be designed so as the maximum deflection of any glass edge into a framing member under wind load shall not exceed L/175 of its span with no evidence of any permanent deformation once the load has been removed. All horizontal framing members to restrict dead load deflection to L/400, up to a maximum of 3mm.

**Construction:** All windows shall be manufactured, installed and glazed in strict accordance with Smart Systems instructions and guidelines as set down in the appropriate technical literature, details and specifications.

Minimum depth of outer frame sections shall be 65mm incorporating two 30mm polyamide thermal break sections within the window profiles. All outer frame and vent members to be 45° mitred corner construction, reinforced by means of extruded aluminium cleats and stainless steel corner braces. All corner joints to be secured by gluing & crimping or gluing and mechanical corner Cleats. All mullions and transoms to be cut/shaped and secured using either stainless steel screws driven into integral screw ports within the sections or cruciform Cleats. All joints to be sealed during construction using suitable ‘small gap’ sealant. The windows to incorporate an internal pressure equalized drainage system with concealed down drainage through a sub sill or frontal drainage with snap on cover caps.

**Finish as Delivered:** Internal Colour: **TBC** External Colour: **TBC**

**Glazing details:** Windows shall be glazed internally with square bead.

Unit thickness: Overall thickness **TBA.**

All internal glazed windows to be dry glazed using ‘snap in’ extruded aluminium beads and EPDM extruded gaskets.

**Ironmongery / Accessories: TBA**

**Fixing:** All fixings to be in strict accordance with the relevant British Standards, including BS 6262 & BS8213 Part 4: 2007, and shall ensure the window is retained securely within the opening without incurring any damage or distortion to the window frame. Generally, fixings to be positioned 150mm from each corner and each mullion/transom and at centres not exceeding 600mm. Fixing lugs/straps only to be used where they can be suitably concealed to approval. All Fixing of windows to the supporting structure to be achieved using a suitable lug and/or frame anchor fixing method capable of accommodating all applicable loads, deflection, tolerances and expansion expected on site. Details of the proposed fixing method shall be submitted to the project engineer for approval prior to installation.