

**THERMAL™**

# System 1-35Hi+ Top Swing Window

The Metal Technology Thermally Broken Top Swing System has been designed to offer the specifier the advantages of polyamide thermal break technology in meeting the latest thermal requirements of the current building regulations.



## Specification Overview

### Introduction

The Top Swing Window offers many advantages over other types of window, the principal ones being that it can be easily and safely cleaned from within the building by reversing the window through 180°. Safety restrictions built into the window fittings ensure that the window can be restrained securely in the ventilation or reverse position. In analysing the risk associated with cleaning windows from within the building, BS 8213: Pt.1:1991 (Table 1) rates this type of window as one of the safest. Other advantages include the ability to reverse the window through 180° without the window projecting inwards into the room - avoiding any interference with blinds and curtains.

### Scope

This specification defines materials, construction, finishes, glazing, security and size limits for the System 1-35 Top Swing Window.

### Thermal Performance

Metal Technology's **THERMAL** range, in conjunction with the correct glass specification, is designed to aid compliance with the latest thermal requirements of the current building regulations.

	U-frame values	
	1-35Hi	1-35Hi+
Fixed light outer frame	1.95W/m <sup>2</sup> K	1.55W/m <sup>2</sup> K
Outer frame and glazed in vent	2.29W/m <sup>2</sup> K	1.97W/m <sup>2</sup> K

The following table, based on a standard commercial GGF window configuration and warm edge spacers, demonstrates how such improved U-frame values then contribute to improving the overall thermal performance of a complete window.

Achievable whole window U-values	Centre pane U-values	
	1.1W/m <sup>2</sup> K	0.6W/m <sup>2</sup> K
1-35Hi glazed in top swing	1.54W/m <sup>2</sup> K	1.19W/m <sup>2</sup> K
1-35Hi+ glazed in top swing	1.45W/m <sup>2</sup> K	1.09W/m <sup>2</sup> K

### Window Energy Rating

Metal Technology's 1-35Hi+ System has been assessed by an approved simulator in accordance with the BFRC's guidelines, using their official Window Energy Rating software, and has been proven to be capable of achieving an **'A' rating**.

### Materials

Aluminium profiles are extruded from aluminium alloy 6060T6, T5 or T4 complying with the recommendations of BS EN 12020-2/BS EN 755-Parts 1 to 9. Polyamide thermal breaks are produced from glass reinforced nylon sections designed to withstand temperatures in excess of 200°C, allowing the sections to be powder coated after thermal breaking.

### Finishes

The range of sections can be provided in either of the following range of finishes:

1. Anodised to BS EN 12373-1 or BS 3987

2. Powder organic coated to BS 6496 or BS EN 12206-1

The System 1-35Hi+ Top Swing Window can accommodate a different colour/finish internally to that used externally.

### Construction

Frame and sash members are mitre cut at 45°. Corners are reinforced with extruded aluminium crimping cleats and corner braces. A secure joint is formed by pneumatically crimping into the extruded crimping cleat. Mullion and transom bars are square cut, shaped and fixed securely to the frame by means of stainless steel screws and fixing cleats. All frame joints are sealed during construction against entry of water using a suitable sealant. Extruded weatherstrips and glazing gaskets are provided to resist the ingress of water. Metal Technology recommend that A2 or A4 Austenitic (300 series/class 70) stainless steel fixing screws are used in the assembly of their products.

### Glazing

Sashes are internally glazed with fixed lights having the option of internal or external glazing. Glass is set against co-extruded gaskets externally and a colour coded wedge is fitted internally. The corners of the gaskets are accurately mitred together and sealant is applied to ensure an effective joint. Standard moulded setting blocks are provided.

### Installation

Detailed installation instructions are provided within the System 1-35Hi+ Top Swing Window Manual which should be strictly followed.

### Top Swing Fittings

The sections are designed to suit the most widely available top swing fittings. Metal Technology recommend that in commercial applications, concealed top swing gearing be used with releasable folding openers.

For owner-occupied domestic applications only Metal Technology can supply an espag casement handle locking system for use on this window. Windows below 900mm wide are fitted with one handle and those over 901mm wide with two handles.

### Maximum Size Limits

Width	Height	Vent Weight
1500mm	1558mm	60Kg

For complete details of maximum/ minimum size limits see the limitation charts in the fabrication manual.

### Performance

Air permeability - BS 6375:Pt.1: test pressure 600 Pa class iv.  
 Water tightness - BS 6375: Pt.1: test pressure 600 Pa  
 Wind resistance - BS 6375: Pt.1:test pressure 2400 Pa

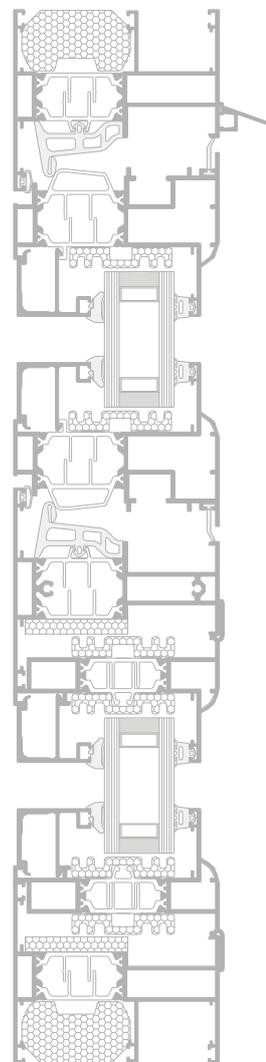
These levels of performance should be sufficient for most locations within the UK and Ireland. Should higher levels of performance be required, Metal Technology's advice should be sought.

### Security

The System 1-35Hi+ Top Swing Window has passed PAS 24 "Specification for Enhanced Security Performance of Windows" as generally accepted on Secure by Design projects. To conform, the window hardware must be in accordance with the tested samples as detailed in Metal Technology's technical literature. Security products should be labelled by the fabricator in accordance with BS 4873.

### Development

Our policy is to continually research the market for new and improved products. We must therefore retain the right to amend specifications without prior notice. It is recognised at Metal Technology that in some instances special sections may be required for particular projects. When this occurs it may be possible to produce bespoke profiles subject to there being sufficient quantity and adequate time.



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