High Insulation (Hi+)
Window and Door Systems

Metal Technology

THERMAL™ 5-20D Hi+

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Since its inception in 1985 Metal Technology is now one of the UK and Ireland's leading designers and suppliers of bespoke architectural aluminium window, door and curtain wall systems. Annual installations now exceed £90 million and the company operates daily dispatches to the UK and Ireland from its 3 acre manufacturing and distribution headquarters. The company is ISO 9001 and ISO 14001 quality and environmentally accredited and is an approved CWCT training centre.

THERMAL™

To comply with the latest building regulations and those proposed for 2013, Metal Technology has developed a range of high performance window and door systems. Using the latest technology the company has developed bespoke thermal gaskets, cellular foams and polyamide thermal isolators which will allow architects and designers to achieve low U values.

50mm Frame Systems

4-20Hi+
Casement

5-20D Hi+
Door

5-20Hi+
Tilt and Turn
Tilt and Slide

7-20Hi+
Pivot

75mm Frame Systems
(Available in Hi and Hi+ Formats)

4-35Hi+
Casement

5-35Hi+
Tilt and Turn
Tilt and Slide

For further information on our full product range visit www.metaltechnology.com

Technical Support

Metal Technology offers a comprehensive design and specification service to architects, developers and main contractors through its team of dedicated architectural advisors. Tailored specifications are provided in NBS format and are also available online along with CAD details and full test data. Thermal modelling and free air flow software allows accurate information to be analysed at early design stage assisting with WER (window energy ratings) and Breeam assessments.

High performance systems offering bespoke solutions and total design flexibility.

Nationwide Fabricator Coverage

Metal Technology has an approved network of fabricators throughout the UK and Ireland to ensure geographical continuity and capacity, with companies specialising in all market sectors.

Market Sectors

Metal Technology products are designed for a diverse range of buildings within the construction market. Key sectors include: Commercial, Retail, Education, Health, Residential/Housing, Hotel/Leisure.

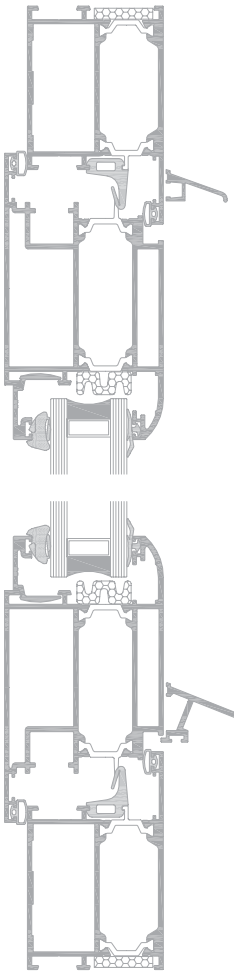
THERMAL™ 5-20D Hi+

Metal Technology's System 5-20D Hi+ offers the designer a wide and diverse range of profiles that will provide structural integrity, weather performance, thermal enhancement, and security. Now a highly cost-effective entrance door solution, the System 5-20D Hi+ complies with both BS 6375 and PAS 23/24. Security testing covers standard, panic and electric release options.

Independently Weather Performance Tested to BS 6375-1

Air Infiltration BS EN 1026	**Class 4**
Watertightness BS EN 1027	**Class 9A**
Wind Resistance BS EN : 12211	**E2400**

Information above is based on single leaf open out fully rebated door.



Thermal Performance

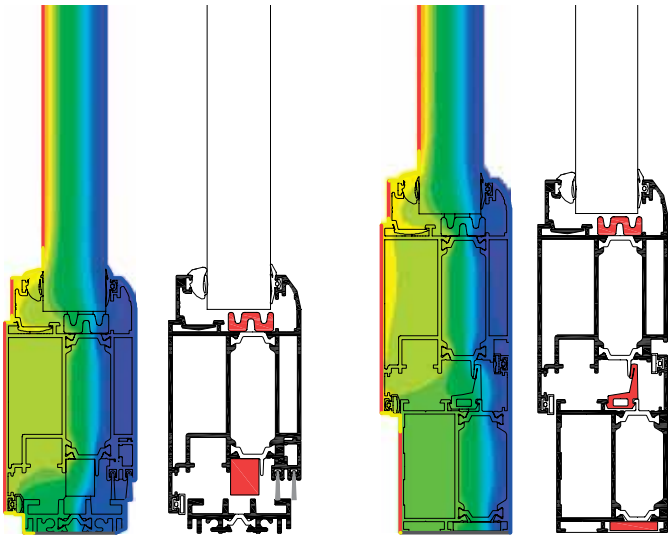
Metal Technology's THERM.AL range, in conjunction with the correct glass specification, is designed to aid compliance with the latest thermal requirements of the current building regulations. The polyamide thermal break profiles have been specifically designed to minimise heat transfer across the door profiles.

Thermal performance is further improved through the introduction of specially designed foam profiles. These reduce radiation heat loss across the air cavities within the door profiles to provide additional thermal enhancement.

5-20D Hi+	U-frame values
Outer frame	**1.91 W/m²K**
Outer frame and sash	**2.178 W/m²K**

The following table, based on a standard single door designed to comply with current DDA requirements (1100mm x 2100mm sash size) and using warm edge spacers, demonstrates how such improved U-frame values then contribute to improving the overall performance of a complete door.

Achievable whole door U-value	Centre pane U-value	
	1.1 W/m²K	0.6 W/m²K
5-20D Hi+ glazed-in sash	**1.61 W/m²K**	**1.30 W/m²K**



Metal Technology can provide tailored U-value calculations using their dedicated estimating software to calculate overall project average U-values for their full range of systems.

Breeam Sustainability Rating

When assessed in accordance with the profile mass formula, as set out in the BRE's Green Guide for sustainable design and environmental performance, Metal Technology's 5-20D Hi+ Door System achieved an **'A' rating**.

Door Energy Rating

The British Fenestration Rating Council (BFRC) is proposing to launch their Door Energy Ratings scheme in 2011 / 2012. This will give Metal Technology the opportunity to demonstrate the energy efficiency of the 5-20D Hi+ Door system.
Please contact our technical team for any change in relation to how the scheme is progressing.

EDER Rating Scale	Door Rating
A	Rating subject to introduction of DER scheme.
B	
C	
D	
E	
F	
G	

Specification Overview

Introduction
The Metal Technology 5-20D Hi+ polyamide door suite offers the designer a wide and diverse range of profiles that will provide structural integrity, weather performannce, thermal enhancement and security as part of their entrance door solutions.

Scope
This specification defines materials, construction, finishes and size limits for the System 5-20D Hi+ Doors.

Materials
Aluminum 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.

Construction
Frame and door 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 Metal Technology's single and two part adhesive. Metal Technology recommend that only A2 or A4 Austenitic (300 series/class 70) stainless steel fixing screws are used in the assembly of their products.

Finishes
The range of sections can be provided in either of the following range of finishes:
Anodised to BS 1615 or BS 3987
Powder organic coated to BS 6496
The System 5-20D Hi+ door can accommodate a different colour/finish internally to that used externally.

Glazing
Door sashes are all internally glazed and can accommodate glazing units from 24mm to 34mm.

Door Fittings
Door sections are designed to receive profile specific hinges that lock into place for easy fitting, a single piece multi point door lock (2 hooks + 4 cams), shoot bolts to slave leaf, euro cylinder locking and lever handles. Metal Technology are able to supply a range of fittings and accessories. See relevant section of Metal Technology technical literature for details of fitting requirements for specific door sizes. In exposed applications Metal Technology advise the use of surface mounted door closers, with a back check facility, to reduce the risk of damage resulting from the doors being forced/blown open past 90°.

Security
System 5-20D Hi+ has passed PAS 23/24. (PAS 23 incorporating Amendments 1, 2, 3 and 4 and Corrigendum No 1. PAS 24 includes BS EN 1303 covering performance of cylinder. Key related security Grade 5 and resistance to drilling Grade 2), "Specification for Enhanced Security Performance" as generally accepted on Secure by Design projects. To conform, the door hardware must be in accordance with the tested sample as detailed in Metal Technology's technical literature. Approvals cover single and double door leaf configurations with lever/lever handles, plus panic gear and electric release.

Installation
Detailed installation instructions are provided in Metal Technology's technical literature which should be strictly followed.

Max Size Limitation

Door Sash	Door Sash Width	Door Sash Height
Single Door	1000mm max	2400mm max
	650mm min	1961mm min
Double Door	*900mm max	2400mm max
	*650mm min	1961mm min

* Width is based on the individual sash width. Maximum door weight with 3 hinges 90 Kg.

For complete details of maximum/minimum size limits see the limitation charts in Metal Technology's technical literature.

Metal Technology has a clear commitment to sustainable products that can offer the best available carbon footprint and Global Warming Potential (GWP) for each particular product. Embodied energy (energy to produce, transport and manufacture) and environmental impact are also considered as part of the procurement package.

Aluminium

Our commitment to sustainable products

Recycling and Waste Reduction
Where we can influence the design and use of our products in developments, we will base decisions on a sustainable basis where the health and safety of the occupants can be combined with the conserving of resources for future generations. As an industry we are using resources more efficiently with the minimum of energy consumption, to deliver a project that is flexible, durable, has longevity, and where practical, using fixtures and fittings that can be reused.

Meeting Standards - ISO 14001
ISO 14001 is an international quality system for environmental management, providing a framework to allow businesses to minimise the impact of their operations on the environment. It seeks to establish a company policy for planning environmental objectives and for complying with laws, directives and regulations.

Aluminium
The intrinsic qualities of aluminium, its infinite recyclability, strength and lightness, durability and low maintenance qualities mean it is one of the most sustainable building materials to be used.

Aluminium is the earth's third most abundant element after oxygen and silicon (ahead of iron).

Aluminium does not emit dust, vapour or particles and is not toxic to touch.

Given its durability and resistance due to applied surface treatments such as anodising or powder coating, aluminium structures need only regular cleaning with neutral detergents followed by rinsing with water.

Aluminium is non-flammable and, when it reaches its melting point in the event of a fire (about 650°C), it gives off no flammable gases or vapours.

Life Cycles
Recycling is a valuable asset in the battle against the greenhouse effect. The global aluminium industry has made great strides during the last century to reduce its environmental impact at all stages of the supply chain. Aluminium extraction and refining companies have reduced their energy requirements by almost 70% since 1900.

This has seen the growing use of hydro-electric energy coupled with a vast increase in aluminium that is recycled. At present more than a third of global aluminium production is from recycled metal, a figure that is growing. Recycled aluminium takes just 5% of the energy needed to produce primary metal with a consequent reduction of 95% in the greenhouse gases produced.
The recycling process is economically attractive and viable. Recycled aluminium meets almost 40% of the demand for the metal in Europe. Approximately 70% of the material used to produce Metal Technology extrusions is recycled.

Aluminium is infinitely recyclable with no loss of its properties: The aluminium cycle is a closed life cycle.

The Delft University of Technology in the Netherlands has investigated the collection rate of aluminium in buildings. Demolition case studies in six different European countries (France, Germany, Italy, Spain, the Netherlands and the United Kingdom) were carried out and the data gathered shows that collection rates are over 95%.

Our products are 100% recyclable



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