

## Thermal Break / Insulating Profile

### 1. Definition

Thermal Break / Insulating Profile is a thermal barrier for aluminum windows, doors and façade (Curtain wall). It is a mixture of Polyamide and Glass Fiber of high purity.

### 2. Raw material

#### **Thermal Break / Insulating Profile must be from TECHNOFORM or approved equal.**

The contractor shall obtain from the thermal break / insulating profile supplier a test report conducted by an accredited third party laboratory. The test report values will be valid for 2 years (e.g. Results of laboratory test done in 2015 is still valid in 2016). The tests below shall be conducted. Samples shall be prepared from extruded thermal break / insulating profile and in a dry<sup>(1)</sup> state.

- ① Melting temperature: min 250°C (ISO 11357-3 or ASTM D3418)
- ② Impact strength: min 30 kJ/m<sup>2</sup> (ISO 179-1)
- ③ Tensile strength (Longitudinal): min 80 N/mm<sup>2</sup> (ISO 527-2, -4 or ASTM D638)
- ④ Young's modulus: min 4,500 N/mm<sup>2</sup> (ISO 527-2, -4 or ASTM D638)
- ⑤ Elongation at break: min 3% (ISO 527-2, -4 or ASTM D638)

<sup>(1)</sup> Sample water content less than 0.2% by weight

### 3. Structural Performance and Requirement

The structural performance of assembled aluminum profile with thermal break / insulating profile shall be in accordance with EN14024.

### 4. Product Testing

The product conformity tests below shall be conducted for batch production and not just sample production.

The product conformity test results shall be included in a certificate of quality, and attached together with the goods delivered.

#### ① Tensile strength (Transverse):

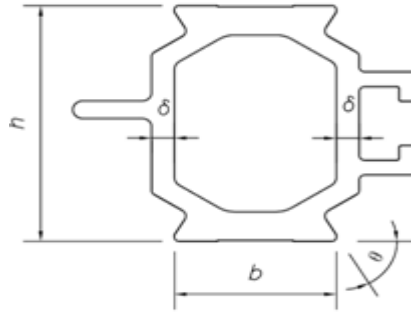
I-shape: min 140 N/mm

Non I-shape: min 45 N/mm

#### ② Margin of error and Product precision

Thermal Break / Insulating Profile, which is directly assembled with profiles for window, door and façade (Curtain wall), shall meet the requirements of the following tolerance range.

- Breakages might occur during the assembly process if the thermal break / insulating profile falls out of the tolerance range, resulting in reduced structural performance of the assembled profile.



Type	Length	Tolerance ±	
		Normal	Hollow
h	≤20	0.05	0.07
	> 20 ~ 50	0.10	0.15
	> 50	0.18	0.20
b	≤20	0.05	0.07
	> 20 ~ 50	0.10	0.15
	> 50	0.18	0.20
δ	≤3.0	0.05	0.08
	> 3.0 ~ 6.0	0.08	0.11
	> 6.0 ~ 10.0	0.13	0.15
	> 10.0	0.18	0.20

(unit: mm)

## 5. Thermal Requirement

Use of thermal break / insulating profile in windows and/or curtain wall systems shall achieve the performance of **Frame U-value < 6.0 W/m²K**.

A thermal simulation report shall be submitted. Simulations shall be conducted in accordance with local environmental / boundary conditions.

## 6. Environmental Performance Requirement

Thermal break / insulating profile used in windows and/or curtain wall systems shall be a green product certified by the Singapore Green Building Council.

<https://web.sgbc.online/public/product>

## 7. Product Quality Safeguard

Unless otherwise specified and approved, suppliers are required to have an applied Quality Management System (QMS) in place that is operated in accordance with and accredited by a third party certification body to the current version of the standard such as ISO 9001. Accredited certification or any other supporting documentation is to be furnished upon request.

## 8. Warranty

The contractor shall obtain from the thermal break / insulating profile supplier a product warranty which shall be valid for a period of ten (10) years against material defects in the thermal break / insulating profile which are caused by non-compliance with the terms specified in this specification sheet.