

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 1 year. The tests below shall be conducted. Samples shall be prepared from extruded thermal break / insulating profile and in a dry⁽¹⁾ state.

- ① Melting temperature: min 250°C (ISO 11357-3 or ASTM D3418)
- ② Impact strength: min 30 kJ/m² (ISO 179-1)
- ③ Tensile strength (Longitudinal): min 80 N/mm² (ISO 527-2, -4 or ASTM D638)
- ④ Young's modulus: min 4,500 N/mm² (ISO 527-2, -4 or ASTM D638)
- ⑤ Elongation at break: min 3% (ISO 527-2, -4 or ASTM D638)

⁽¹⁾ 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):

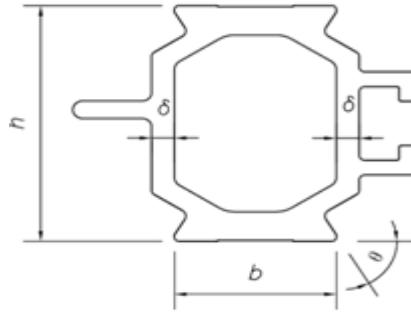
I-shape: min 140 N/mm

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.