

# Thermal Isolation Solutions



# Thermal Break Pads

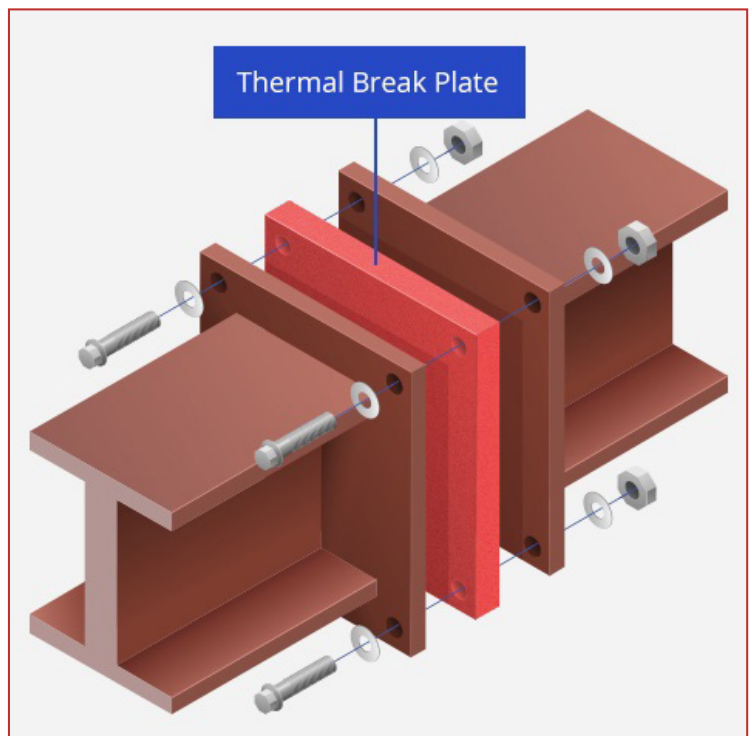


# Thermal Break Pads - Introduction

Structural Thermal Break plates are high performance thermal insulators used between both horizontal and vertical connections of internal and external elements to prevent thermal / cold bridging. Structural Thermal Breaks provide a simple, economical and extremely effective solution to meeting Part L of the Building Requirements by way of reducing both heat loss and the risk of condensation. TICO Structural Thermal Breaks can also be used in hot climate conditions to insulate the cool, air conditioned interior, from the hot outside conditions.

Our Structural Thermal Breaks are manufactured under our ISO 9001 (Quality) and 14001 (Environmental) Standards and all structural plates will be accompanied by a Certificate of Conformance, providing full traceability from the raw materials used in the manufacture of the sheets to the delivered product, and auditable by the BBA.

We take pride in providing our customers with a high level of service from technical support through to manufacturing accuracy and timely deliveries to site.



**TICO Thermal Break Pad between steel to steel connection**

## BENEFITS

- Asbestos free
- Low heat conductivity
- Excellent tolerances with respect to parallelism
- Long life expectancy > 50 years (dependent on operating conditions)
- Low water absorption
- Good hydrocarbon stability
- Good chemical stability
- Excellent mechanical durability
- Very good electrical properties

## TYPICAL APPLICATIONS

### 4 MAIN CONNECTION TYPES

**Steel to Steel**

**Steel to Concrete**

**Steel to Timber**

**Concrete to Concrete**

**TICO**

# CV-TB-FR - A2 Fire Retardant Pad

TICO CV/TB/FR is the first A2 fire rated Thermal Break Pad available. The material provides the highest fire-retardant performance whilst offering any development a truly unique thermal bridging solution.

CV/TB/FR material has an extremely high compressive strength, combined with a low thermal conductivity level, which makes it perfect for specifiers who are looking at a high load / fire rated connection.

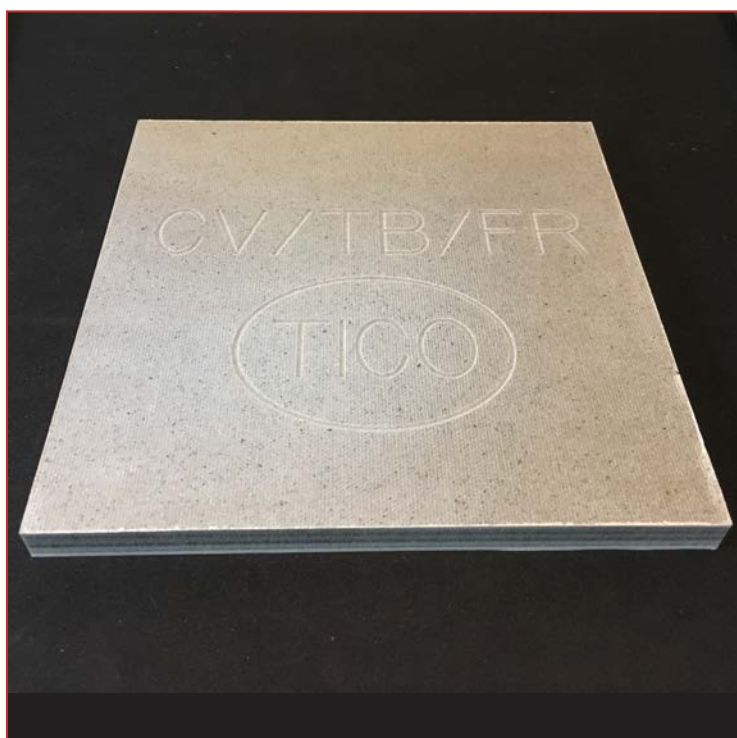
- A2 Fire Rated to EN 13501-1
- Will not contribute towards the spread of fire.
- Operating temperature up to 500°C
- Low thermal conductivity of 0.25 W/m.K
- Available in 6, 10, 15 & 25mm

Thermal Break Pads are a thermal insulator most commonly used between connections of internal and external elements; such as steel framework where differing internal and external temperatures cause thermal bridging.

The Thermal pads can be used to prevent both heat and cold transfer improving building efficiencies and eliminating potential issues such as condensation.

Thermal Breaks provide an extremely effective solution to meeting Part L of the Building Requirements legislation.

Thermal transfer can be very problematic and will cause a number of catastrophic issues such as; condensation, structural overheating and excessive strain on existing heating systems. Post construction, the mentioned issues would be considerably expensive to rectify - so by using the CV/TB/FR pad from the outset, these concerns will be diminished sufficiently.



**TICO CV/TB/FR  
Thermal Break Pad**

## MATERIAL PROPERTIES

		Test Standard
<b>Mechanical Properties</b>		
Flexural Strength	165 MPa	ISO 178
Compressive Strength at 200°C	250 MPa	ISO 604
Design Compressive Strength at 23°C	320 MPa	ISO178
<b>Physical Properties</b>		
Density	2.15 (+/-0.1) g/cm <sup>3</sup>	ISO 1183
Water Absorption (24h 23°C)	<1%	ISO 12087
<b>Thermal Properties</b>		
Operating Temperature*	-100°C to +500°C	
Coefficient of linear expansion	1.0E <sup>-6</sup> / K	DIN 53752
Thermal Conductivity*	0.25 W/m.K	DIN 52612
Flame Retardance	A2 - s1, d0	EN 13501-1

\*Manufacturers' figures

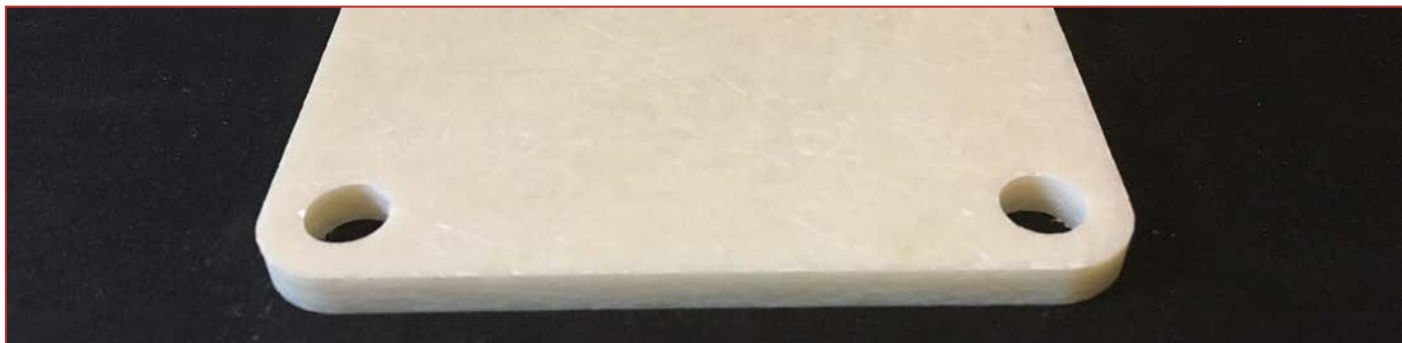
# CV-TB-100 & CV-TB-200

## MATERIAL PROPERTIES CV-TB-100

		Test Standard
<b>Mechanical Properties</b> Compressive Strength at 20°C	20 MPa	
<b>Physical Properties</b> Density	0.97 g/cm <sup>3</sup>	
Water Absorption (24h 23°C)	0.01%	DIN 53495
<b>Electrical Properties</b> Electrical Strength	>70 kV/mm	DIN 53481
<b>Thermal Properties</b> Operating Temperature*	-40°C to +80°C	
Coefficient of linear expansion //	2 k <sup>-1</sup> x 10 <sup>-4</sup>	DIN 53752
Thermal Conductivity*	0.41 W/m.K	DIN 52612
Flame Retardance	HB	UL94
<b>Acoustic Properties</b> Velocity	2430 m/s	
Impedance	2.33 Rayl/m <sup>2</sup>	

## MATERIAL PROPERTIES CV-TB-200

		Test Standard
<b>Mechanical Properties</b> Flexural Strength	115 MPa	ISO 178:2001
Compressive Strength	109 MPa	ISO 826
E-modulus	4100 MPa	ISO 527-1
Elongation at Break	>20%	ISO 527-1
Compressive Modulus	3000 MPa	ISO 604:2002
<b>Physical Properties</b> Density	1.15 g/cm <sup>3</sup>	ISO 1183
Water Absorption (24h 23°C)	0.95% (max)	ISO 1606
Moisture Absorption (Saturation)	7%	ISO 62:1999
<b>Electrical Properties</b> Dielectric Strength	25 kV/mm	IEC 60243-1
<b>Thermal Properties</b> Operating Temperature*	-40°C to +160°C	
Coefficient of Linear Thermal Expansion	8x10 <sup>-5</sup> °C <sup>-1</sup>	ISO 11359-2
Thermal Conductivity*	0.184 W/m.K	ISO 12667
Flame Retardance	HB	IEC 60695-11-10



CV-TB-100, CV-TB-200 & CV-TB-300

## MATERIAL PROPERTIES CV-TB-300

		Test Standard
<b>Mechanical Properties</b>		
Flexural Strength	170 MPa	ISO 178
Modulus of Elasticity	10000 MPa	ISO 178
Compressive Strength at 200°C	90 MPa	ISO 604
Design Compressive Strength at 23°C	198 MPa	ISO 826
Friction Coefficient	0.15	ASTM D1894
<b>Physical Properties</b>		
Density	1.5 (+/-0.1) g/cm <sup>3</sup>	ISO 1183
Water Absorption (24h 23°C)	0.49%	ISO 12087
<b>Electrical Properties</b>		
Dielectric Strength	21 kV/mm	IEC 60243-1
<b>Thermal Properties</b>		
Operating Temperature*	-180°C to +200°C	
Coefficient of linear expansion	20 1.0E <sup>-6</sup> / K	DIN 53752
Thermal Conductivity*	0.1332 W/m.K	DIN 52612
Flame Retardance	V0	UL94

## TYPICAL APPLICATIONS



Balconies



Canopies



Basements



Roof Top Plant Rooms



External Stairwells



Extensions





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