

Thermal Break Pads

Armatherm (FRR) - High strength, highly efficient and long lasting



INTRODUCTION

Fuel and power conservation is growing in importance throughout the construction industry. With the introduction of new Part L 1a Guidelines regarding the efficiency of thermal bridging you need to know that there is a cost efficient solution for all your needs that will not compromise structural integrity.

Strong and Effective.

Armatherm Fabric Reinforced Resin (FRR)

Armatherm Fabric Reinforced Resin (FRR) Thermal Break Pads deliver high performance thermal insulation between interior and exterior steelwork and concrete to prevent thermal bridging. Cutting out thermal bridging stops conduction heat loss and prevents surface condensation from forming inside the building that can be due to cold transfer meeting warm air.

Armatherm FRR Thermal Break Pads offer exceptionally high compressive strength for mechanical connections. Armadillo FRR have a compressive modulus marginally less than steel, (310 Mpa compared to 400 Mpa). This gives unrivalled stability in bolted joint connections.

- Fast delivery from stock
- Custom machining service
- Design and advice service
- Bushings and Washers for improved protection
- Standard thickness' from 10 mm to 40 mm
- Rigid fixing for broken beam designs

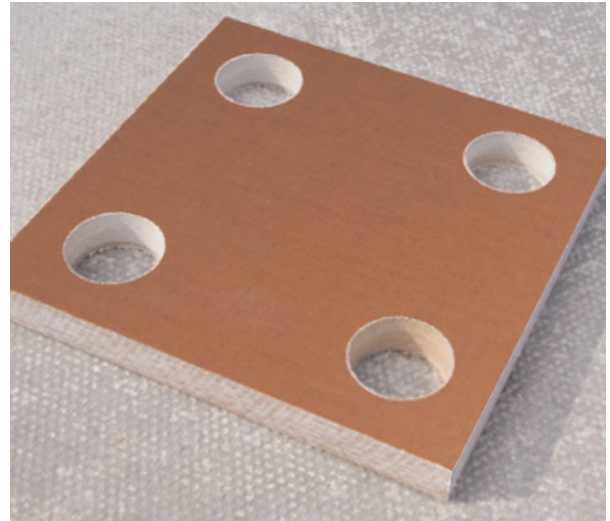
Long lasting

Oil and moisture proof Armatherm (FRR) Thermal Break Pads will give a service life in excess of 60 years.

In thermal bridge applications the pad is required to be exceptionally stiff to prevent relative movement between the mating surfaces. The high compressive modulus (310 Mpa) ensures that Armatherm (FRR) Thermal Break Pads provide this.

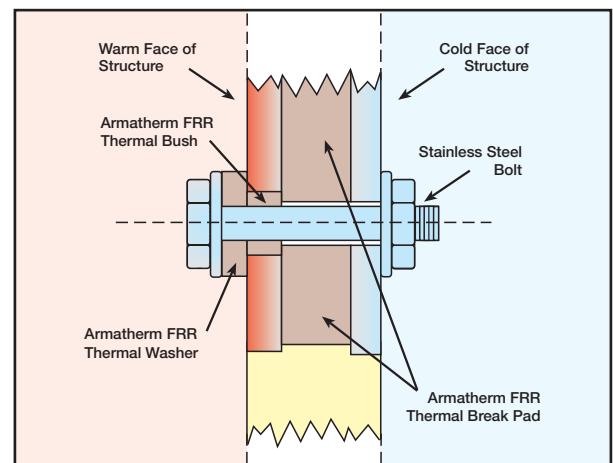
Common Applications

- Balconies
- Canopies
- Brie Soleil
- External Stairs
- Balustrade fixing
- Roof Perlins



Armatherm Thermal Bush and Washer

For added thermal breaking, bushes and washers can be used on the warm face of the structure.



Some practical aspects and considerations when using Armatherm Thermal Break Pads

- Fast delivery even for complicated shapes.
- Supplied to site packed and labeled ready for installation
- Through bolted design for secure peace of mind strength
- Low Thermal transfer 0.20 W/m.K compared to Steel at 54W/m.K

See overleaf for detailed physical properties of Armatherm Fabric Reinforced Resin (FRR) products



Physical Properties of Armatherm Fabric Reinforced Resin (FRR) Thermal Break Pads

Property	Typical Result	Units
Cross breaking strength	130	Mpa
Impact strength, notched, charpy	11.5	kJ/m ²
Compressive strength (perpendicular to laminates)	310	Mpa
Shear strength, (perpendicular to laminates)	90	Mpa
Tensile strength	68	Mpa
Young's modulus	6.3	GPa
Water Absorption		
- 1.6mm thick	90	mg
- 3mm thick	105	mg
- 6mm thick	130	mg
- 12mm thick	160	mg
Electric strength, perpendicular to laminates in oil at 90 deg		
- 1.6mm thick	4.5	MV/m
- 3mm thick	2.6	MV/m
- 6mm thick	2.0	MV/m
Electric strength, edgewise in oil at 90 deg	12	kV
Insulation resistance after immersion in water	1x10	ohms
Relative density	1.36	-
Maximum working temperature		
- continuous	120	°C
- intermittent	130	°C
Thermal classification	Class E	-
Thermal conductivity through laminae	0.20	W/(mK)
Thermal expansion in plane of laminae	2.2	X 10 ⁻⁵ / K
Specific Heat	1.5	kJ/(kgK)

Test Methods to BS EN 61212-2, where applicable

Neoprene Thermal Break Pads (Lower specification, reduced cost option)

In non critical applications or where cost is an overriding factor the use of Armadillo Grade 133 Neoprene may be a suitable alternative to grade FRR pads.

While the compressive strength of the Grade 133 is not as high as FRR a rigid connection can still be constructed where bending moments are not as severe.

Technical Spec:

Colour	Black
Hardness	85 Duro
Max Temp	110°C
Min Temp	-20°C
Density	1400Kg /M3
Compressive Strength	12 Mpa
Thermal Conductivity	0.36 W/(mK)

