ARMATHERM™ 500 SERIES

Thermal Break Material For Structural Connections

INTRODUCTION

Reducing heat flow within a building's thermal envelope reduces energy consumption as well as potential condensation issues. Armatherm™ 500 thermal break material significantly reduces energy lost from thermal bridging in building envelope connections.

Armatherm™ 500 is a high strength, polyurethane material made in several densities to support a wide range of loading conditions. Due to its closed cell structure, it does not absorb water or moisture and has limited creep under continuous load.



Armatherm™
500 Series

SPECIFICATIONS OF ARMATHERM™ 500 SERIES

Specifications of Armatherm™ 500 Series	160	250	320	490
Compressive Strength (N/mm²)	2.0	4.3	6.8	18.5
Compressive Modulus (N/mm²)	65	137	225	496
Thermal Conductivity (W/mK)	0.031	0.042	0.064	0.078
R Value per 25mm	4.80	3.40	2.80	2.00
Min. Operating Temperature (°C)	-185	-185	-185	-185
Max. Operating Temperature (°C)	80	80	80	80

Armatherm™ 500 is manufactured in sheets 2000mm x 1000mm x 5mm, 10mm, 12mm, 15mm, 20mm, 25mm, 50mm thick and can be bonded to create 150mm, 200mm and 250mm thicknesses to achieve a specific R value. It can be used anywhere a penetration or transition exists in the building envelope creating a thermal bridge. Solutions using Armatherm™ to minimise heatloss include:

- Parapets
- Slab/floor edge
- Column base
- Roof penetrations
- Custom windowsills
- Fenestration
- Roof edge
- Slab to foundation
- Foundation to wall
- Concrete balconies
- Custom moulding for over-insulating



Column Base Thermal Break

Armatherm Thermal Bridging Solutions LTD

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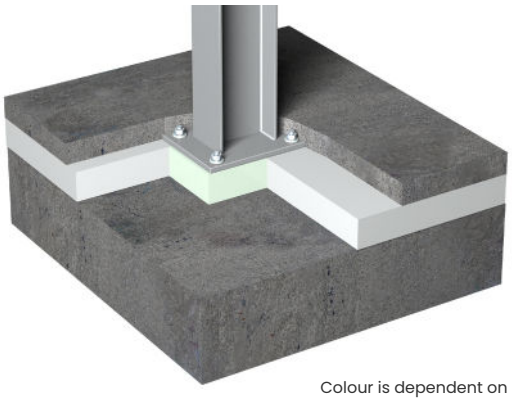
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COLUMN BASE

Columns traditionally extend through the building envelope and slab insulation at their base. Thermal bridging can be prevented by using Armatherm™ 500 series material as a load supporting thermal break directly under the column base.

This is particularly important in cold storage facilities to prevent the sub grade from freezing.



Colour is dependent on load

PARAPET / ROOF PENETRATION

Roof to wall and parapet locations require structural framing for support which prevents continuous insulation from roof to facade. This creates a thermal bridge which can be prevented by providing an Armatherm™ 500 series structural thermal break under the parapet connecting the facade and roof insulation and improving the effective R value by as much as 30%. A thermal break can also be installed within the envelope at roof penetration points where structural elements are supported. This provides continuous insulation and prevents potential condensation issues.



Colour is dependent on load

SLAB / WALL TRANSITION / WALL

Foundations are part of a building's envelope. The connection from slab on grade to foundation wall and wall above foundation wall are both areas where thermal bridging occurs. Armatherm™ 500 series material can support and transfer loads up to 18.5 N/mm2 while providing minimal energy loss.



Colour is dependent on load

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ARMATHERM™ FRR

Washers and Bushings

ISOLATION WASHERS AND BUSHINGS

A thermal break should also be provided at the front side of the bolt head between two steel washers and face of the exterior steel. This prevents a thermal bridge through the bolt which would otherwise provide a path for heat flow through the thermal break assembly.

Armatherm™ Isolation washers and bushings are recommended to eliminate this path and any potential for condensation within the building envelope. Contact us for assistance with your structural design or thermal calculations.



Bushing Detail

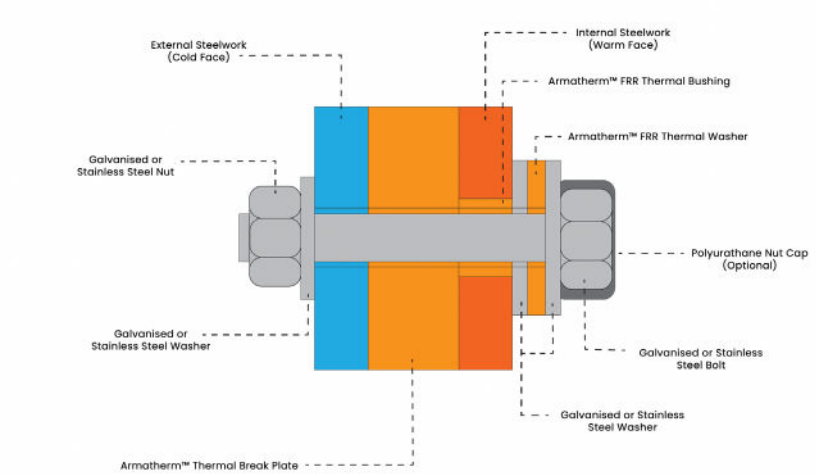
Bolt Size	Hole In Pad	Bushing ID	Bushing OD	Hole in Structure	Bushing Length (Standard)
3/8"	0.44"	0.44"	0.57"	0.64"	0.50"
M12	**14mm**	**14mm**	**20mm**	**22mm**	**13mm**
1/2"	0.55"	0.55"	0.78"	0.85"	0.50"
M16	**18mm**	**18mm**	**24mm**	**26mm**	**13mm**
5/8"	0.70"	0.70"	1.00"	1.07"	0.50"
M20	**22mm**	**22mm**	**28mm**	**30mm**	**13mm**
3/4"	0.86"	0.86"	1.10"	1.17"	0.50"
M23	**24mm**	**24mm**	**32mm**	**35mm**	**13mm**
7/8"	0.94"	0.94"	1.25"	1.31"	0.50"
M24	**26mm**	**26mm**	**32mm**	**35mm**	**13mm**
1"	1.05"	1.05"	1.25"	1.38"	0.50"

Washer Detail

Bolt Size	Washer ID	Washer OD	Thickness
3/8"	0.44"	1.18"	0.25"
M12	**14mm**	**30mm**	**6mm**
1/2"	0.55"	1.18"	0.25"
M16	**18mm**	**40mm**	**6mm**
5/8"	0.70"	1.57"	0.25"
M20	**22mm**	**47mm**	**6mm**
3/4"	0.86"	1.85"	0.25"
M23	**24mm**	**50mm**	**6mm**
7/8"	0.94"	2.00"	0.25"
M24	**26mm**	**50mm**	**6mm**
1"	1.05"	2.00"	0.25"

Armatherm has a tolerance of +/- 0.76mm on the I.D. and + 1.52mm on the O.D. on our thermally broken bushings.

CUSTOMER ISOLATION BUSHINGS AND WASHERS AVAILABLE UPON REQUEST.



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