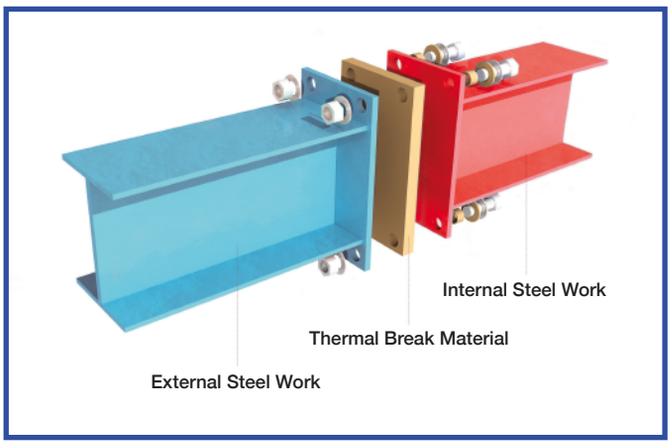
www.armatherm.com

Armatherm™ Grade FRR

Structural Thermal Break Solutions

Introduction

Reducing heat flow within a building's thermal envelope reduces energy consumption as well as potential condensation issues. Thermal bridging through steel and concrete framing can have a significant impact on a building's energy performance. Armatherm™ FRR thermal break material provides low thermal conductivity and high compressive strength. Armatherm™ FRR is made of a reinforced, thermoset resin which enables FRR to boast limited combustibility and reduce the amount of creep under load making it the ideal material for use in structural thermal break connections.



Specifications of Armatherm™ FRR

Maximum Loading Pressure	**45,000 psi**
Compressive Modulus	**83,500 psi**
Shear Strength	**16,000 psi**
Standard Thickness	**1/2", 3/4", 1," & 2"**
Thermal Conductivity	**1.056 BTU·in/h·ft²·°F**
Minimum Operating Temp	**-60°F**
Maximum Operating Temp	**220°F**

[1]For comparison, the thermal conductivity of Mild Steel is 320 BTU·in/h·ft²·°F

Other thicknesses available: 1/16", 1/8", 1/4", 3/8", 5/8", 7/8".
Armatherm™ FRR sheets can be bonded together to satisfy U value and thickness specification requirements.

Applications of Armatherm™ FRR

- Beam Connections
- Masonry Shelf Angles
- Lintels
- Canopies
- Balconies
- Curtain Wall Mullions
- Rain Screens
- Z Girts
- Roof Penetrations

Call **844 360 1036** For all enquiries

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Washer and Bushing

A thermal break should also be provided at the front side of the bolt head between the steel washer 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™ 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.

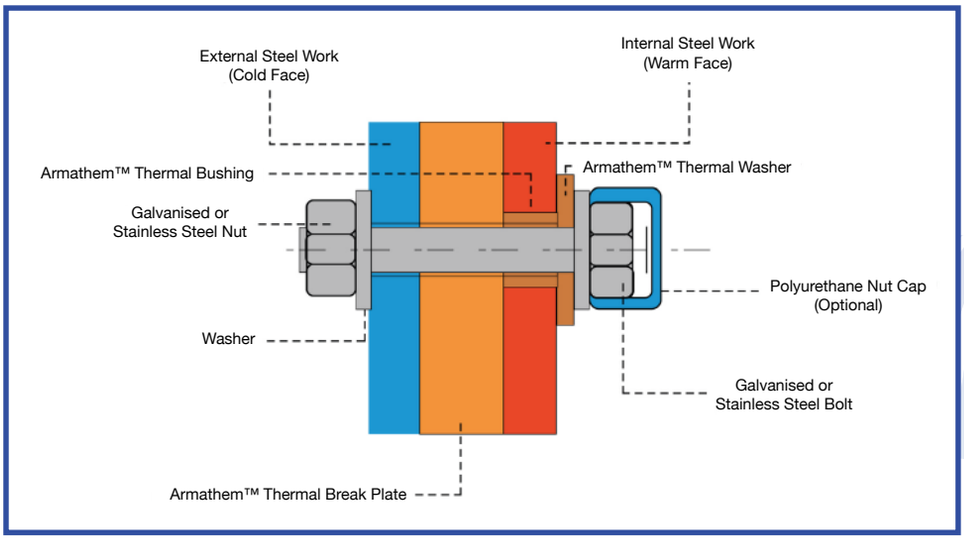
Bushing Detail

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”	0.375”
M12	14mm	14mm	20mm	22mm	10mm
1/2”	0.55”	0.55”	0.78”	0.85”	0.375”
M16	18mm	18mm	24mm	26mm	13mm
5/8”	0.70”	0.70”	1.0”	1.07”	0.50”
M20	22mm	22mm	28	30	13mm
3/4”	0.86”	0.86”	1.10”	1.17”	0.50”
7/8”	0.94”	0.94”	1.25”	1.31”	0.50”
M24	26mm	26mm	32mm	32mm	17mm
1”	1.05mm	1.05mm	1.25”	1.38”	0.625”

Armatherm has a tolerance of +/- 0.03” on the I.D. and + 0.06” on the O.D. on our thermally broken bushings.

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”
7/8”	0.94”	2”	0.25”
M24	26mm	50mm	6mm
1”	1.05”	2.00”	0.25”



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