Thermomass® | Star Series

Supplier:

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Product Description:

Thermomass Star Series fiber-composite connectors are designed for the construction of non-composite, load-bearing and cladding concrete sandwich wall panels. The connectors are corrosion and alkali resistant and, when combined with rigid insulation, provide an integral insulation system for concrete walls and a connection between two wythes, or layers, of concrete to transfer loads to the structural wythe.

Composition & Materials:

Thermomass Star Series connectors include a structural portion composed of E-CR glass fiber and cured vinyl ester resin, as well as thermoplastic molded sealing collars. The vinyl ester matrix impregnates the fiber strands, creating a composite material that has been tested and shown to be resistant to chemical attack. The sealing collars provide a friction fit when placed within the pre-drilled holes in the insulation. The flange (stop) ensures proper embedment depth.

Types & Sizes:

The Star Series connectors provide for 2" (50 mm) of embedment in each wythe of concrete. They are designed specifically for sandwich walls that have a exterior wythe of 2 ½" (63 mm) or more. The overall connector lengths and spacing are determined based on the insulation thickness and minimum concrete wythe thickness.

Installation & Application:

The Star Series connectors are designed for use in plant pre-cast applications. The connectors are installed through pre-drilled holes in rigid insulation into plastic concrete. The connectors should be pushed through the holes until the collar flange is seated against the insulation. For complete installation instructions, please contact Thermomass.

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Technical Data:

Thermomass Star Series connectors are tested in accordance with ICC-ES AC320, Acceptance Criteria for Fiber-Reinforced Composite Connectors Anchored in Concrete and are listed with ICC-Evaluation Service, Inc (ICC-ES) Report ESR-1746.

The connectors exhibit the properties and characteristics indicated in Table 1 when tested as represented.

Warranty:

Thermomass warrants that the connectors will not vary by more than 10% from performance specifications specified herein.

All other warranties, expressed or implied, including the warranty of merchantability and fitness for a particular purpose, are excluded. No endorsement or promotion of any particular panel system or fabricator is intended. Thermomass makes no representation as to the performance of any panel fabricated using Thermomass MC/MS series fiber-composite connectors. The concrete wall panel fabricator is solely responsible for the performance of the building system panel. For further warranty information, contact a Thermomass representative.

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Table 1: Physical Properties of 12mm Thermomass Star Series Connectors

Material: TM-G76V24	Unit	Value	Unit	Value
Tensile strength	N/mm^2	870 **	ksi	126.1 **
Elongation at fracture	%	2.1 **	%	2.1 **
Flexural strength (strong axis)	N/mm^2	801 **	ksi	116.1 **
Compressive strength (12.7 mm (1/2") long specimen)	N/mm^2	465 **	ksi	67.4 **
Shear strength	N/mm^2	400 **	ksi	58.0 **
Flexural elasticity modulus	N/mm^2	32,800 **	ksi	4,764 **
Tensile elasticity modulus	N/mm^2	40,000 **	ksi	5,800 **
Rockwell "E" Hardness, minimum		70		70
Physical Properties				
Core diameter	mm	12.0	Inch	0.472
Cross sectional area	mm^2	156.6	In^2	0.243
Moment of inertia	mm^4	1948	In^4	0.0047
Pull out capacity in 35 MPa concrete (5,000 psi)	kN	21.3	Lbs.	4,780