

# Product Technical Manual

Revision Date:

TDS Number:

Product Name: Dome Roof Insulation Panel

Version: V 3.0

## Product Introduction

Dome Roof Insulation Panel is a new type of thermal insulation material with vertically aligned rock wool as the core. It is produced through a continuous production line, where a polyurethane foam adhesive bonds cement-based interface-reinforced facing or aluminum foil to the rock wool core in a single composite process. (Abbreviation: Dome Insulation Panel)

Standard Size: 1200mm × 600mm (Custom sizes available upon request)

Thickness Range: 30mm – 200mm

### Applications:

Large Public Buildings: Airport terminals, high-speed rail stations, convention & exhibition centers, stadiums, etc.

Large Industrial Buildings: Precision industrial plants, etc.

## Product Features

1. Class A Fire Resistance
2. Excellent Mechanical Performance
3. High Dimensional Flatness
4. Low Thermal Conductivity
5. Unique Self-Repairing Functionality

## Performance Indicators

### 1.Dome Roof Panel Product Specifications:

Product Performance		Unit	Dome Insulation Panel
Dimension	Length	mm	$\pm 2.0$
	Width	mm	$\pm 2.0$
	Thickness	mm	0-2.0
Density		Kg/m <sup>3</sup>	100-120
Compressive Strength at 10% Deformation		kPa	$\geq 80$
Point Load (at 5mm Compression Deformation)		N	$\geq 1000$
Water repellency		%	$\geq 99.8$
Short-Term Water Absorption (Partial Immersion, 24h)		Kg/m <sup>2</sup>	$\leq 0.40$
Acidity Coefficient		--	$\geq 1.8$
Fire performance		--	Class A1 Non-combustible
Tensile strength perpendicular to the surface (or plane)		MPa	$\geq 0.10$
Dimensional stability (70 °C, 48h)		%	$\leq 0.2$
Noise Reduction Coefficient (NRC)		--	$\geq 0.5$

## 2.Performance Comparison of Different Products:

Item	Unit	Regular Rock Wool Board	Dome Insulation Panel	Standard Reference
Density	kg/m <sup>3</sup>	160	100-120	GB/T19686 Thermal Insulation Products Made of Rock Wool for Buildings
Thermal Conductivity (23±2℃)	W/(m·k)	≤0.045	≤0.040	
Compressive Strength (10% Deformation)	kpa	40	≥60	
Point Load	N	500	≥800	
Water repellency	%	≥98%	≥99.8%	
Short-Term Water Absorption (Partial Immersion, 24h)	Kg/m <sup>2</sup>	≤0.5	≤0.4	
Tensile Strength Perpendicular to the Panel Surface	MPa	0	≥0.10	



## System Composition

The Wanhua Dome Roof Insulation System is an integrated thermal insulation assembly comprising a vapor barrier layer, dome roof insulation panels, waterproof membrane layer, and fastening materials (including adhesives, anchors, etc.), mechanically connected with the roof envelope structure to form a unified construction system. Specifically designed for flexible waterproof roofing structures, this insulation solution delivers exceptional thermal insulation, fire resistance, waterproofing, impermeability, compressive strength, crack resistance, and high surface flatness performance.

## System Features

### 1.Long Service Life:

With lightweight properties, excellent aging resistance, and a wide operating temperature range, the system can achieve a 50-year service life under various simulated climatic conditions in laboratory testing.

### 2.High Safety Performance:

Featuring high compressive and tensile strength, along with secure and effective fasteners during installation, ensuring system robustness and reliability.

### 3.Exceptional Thermal Insulation Performance:

Wanhua "Dome" roof insulation panels exhibit minimal dimensional deviation and tight, seamless installation, effectively preventing thermal bridging and improving thermal efficiency. With low thermal conductivity, they deliver outstanding insulation.

### 4.Reliable Waterproofing and Sound Insulation:

Completely resolves common issues in traditional steel roof systems, including water leakage, cold bridging condensation, noise, and complex curved surface construction.

#### 5.High Construction Efficiency:

The insulation panels feature large dimensions, excellent flatness, and lightweight properties per unit area, enabling an eco-friendly, quick, and simple installation process with a shortened construction period.

**For more information, please refer to the Safety Data Sheet (SDS) of our products or contact our Customer Service Center.**

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The indicators and data provided in this document are based on our current level of technical knowledge and practical experience, and are for reference only. Specific guaranteed indicators are subject to the quality assurance certificate or supply contract. The user is responsible for testing the products purchased from our company to verify their suitability for their intended processes and applications, and to achieve the desired objectives. Further application and processing of our products are beyond our control. Therefore, our liability for the products provided is limited to the portion delivered by us and used by you. We do not assume responsibility for indirect losses incurred during the production process using our products as raw materials. Our technical support and customer service center are available to provide consultation and technical services related to our products. We welcome your inquiries and communication via mail or phone.

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