

Module

Product Introduction

The fiber module is made of a fiber needle blanket of corresponding material, processed on a special machine according to the fiber component structure and size. During the processing, a certain proportion of compression is maintained to ensure that after the ceramic fiber module wall lining is completed, due to the expansion of each ceramic fiber module in the same direction, the ceramic fiber modules are squeezed into a seamless whole. The ceramic fiber modules can be directly fixed on the steel plate of the industrial kiln shell through various forms of anchors. The new refractory lining products that replace traditional heavy refractory materials to simplify and speed up kiln construction and improve the integrity of the lining have promoted the progress of kiln masonry technology.



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Module

Application

High temperature resistant fiber modules are materials used in high temperature environments, such as metallurgical furnaces and soldering furnaces, petrochemical industry heating furnaces and livestock furnace insulation inner villages.



Advantages of ceramic fiber modules in kilns:

- The various anchors on the back of the modules allow the modules to be installed in parallel or in parquet
- After unbundling, the folded blankets will squeeze each other in different directions without gaps
- Elastic fiber blankets can resist mechanical forces
- The elasticity of the fiber blanket can compensate for the deformation of the furnace shell, so that there will be no gaps between the components
- Light weight and low heat absorption
- Low thermal conductivity can bring high energy saving effects
- Ability to resist thermal shock
- The lining does not need to be dried and maintained, so it can be put into use immediately after installation
- The anchor system is away from the hot surface of the component, so that the metal anchor is at a relatively low temperature, which improves the safety of anchoring

Module

Aluminum silicate ceramic fiber module technical data sheet

Properties	1260Ceramic fiber module	1430Ceramic fiber module	1500Ceramic fiber module	1500PZr+MAF TEC Bmodule	1600PCW module
Color	white	white	Green	white	white
Classification Temperature°C	1260	1430	1500	1500	1600
Continuous Use Temperature, °C	1060	1230	1300	1400	1500
Density, kg/m3	96/128	96/128	96/128	128/150	128/150
Tensile Strength KPa (128KG/M3)	> 75	> 75	> 75	> 100	> 100
Permanent Linear Shrinkage, %,24 hours					
1000°C	< 4				
1300°C		< 4			
1400°C			< 4		
1500°C				< 1	< 1
Chemical Composition, %					
Alumina, Al2O3	44	36	37	72	72
Silica, SiO2	54	44	50	28	28
Zirconia oxide, ZrO2	-	15-16	6	-	-
Alumina+Silica	98	-	-	99	99
Alumina+Silica+Zirconia oxide	-	99	-		
Thermal Conductivity, W/m·K					
600°C	0.15			0.064	0.064
800°C	0.22	0.21	0.19	0.094	0.094
1000°C	0.31	0.31	0.28	0.169	0.169
1300°C	-	-	0.3	0.25	0.25

*Special sizes can be designed and manufactured according to customer requirements. For more specifications and detailed technical solutions, please contact our sales engineer. The technical data of the product is the average value measured by the adopted test standard. The value will fluctuate within a certain range. This data does not represent the quality assurance data of the product.

Aluminum silicate ceramic fiber module product size

Length (MM)	Width (MM)	Thickness (MM)	Packaging
1500	300	300	Wooden plywood or plastic film
1200	300	300	
900	300	300	
600	300	300	
300	300	300	

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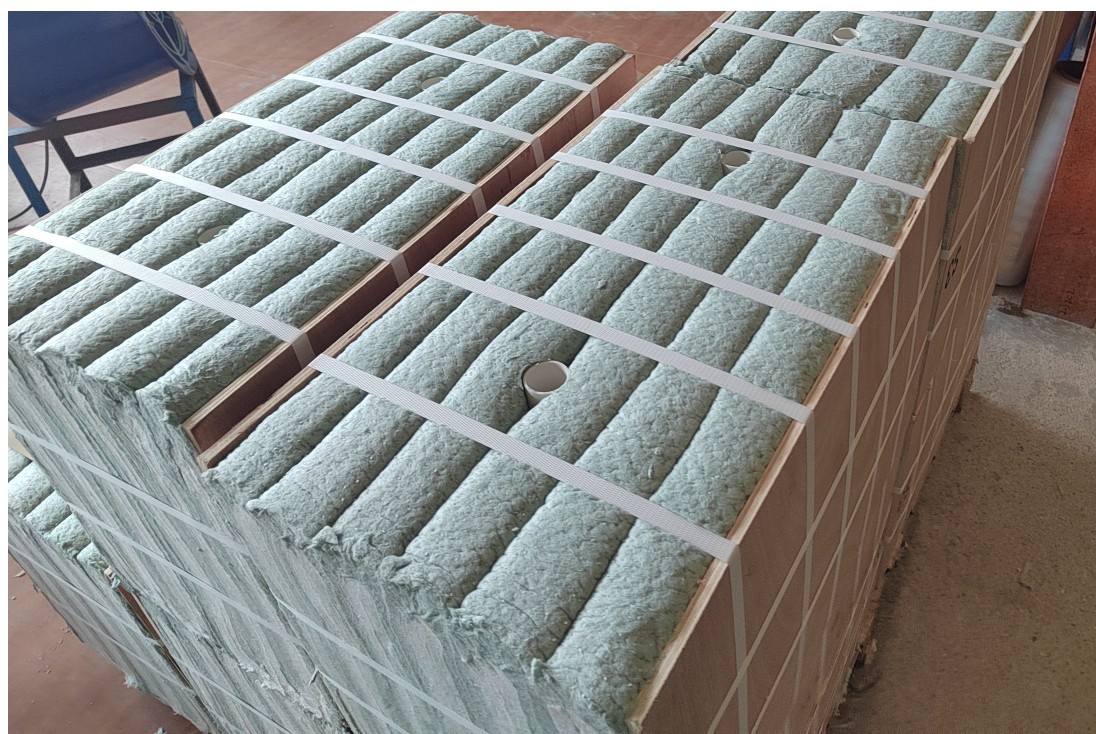
Folding Module

Product Introduction

The fiber folding module is made of high-quality refractory fiber blanket, which is folded and extruded, fixed with wooden plywood, and equipped with 304 or 310 stainless steel anchors, bolts and nuts according to customer requirements.

Widely used in high-temperature furnace equipment in steel metallurgy, petrochemical, glass enamel, industrial ceramics, non-ferrous metal smelting and other industries.

Easy and quick installation.



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Stacked Modules

Product Introduction

The fiber stacking module is made of high-quality refractory fiber blanket, which is extruded through cutting and fixed with wooden plywood. It is also equipped with 304 or 310 stainless steel anchors, bolts and nuts according to customer requirements.

Widely used in high-temperature furnace equipment in industries such as steel metallurgy, petrochemicals, glass enamel, industrial ceramics, and non-ferrous metal smelting.

Easy and quick installation,



Plastic Encapsulation Module

Product Introduction

The plastic-sealed module is made of high-quality fire-resistant fiber blanket, which is folded and extruded, fixed with high-molecular polymer plastic film, and equipped with 304 or 310 stainless steel anchors, bolts and nuts according to customer requirements.

Compared with the traditional wooden plywood module, the plastic-sealed module has the following advantages

- 1 It can solve the problem of excessive local pressure, which leads to fiber stress fracture,
- 2 The surface of the module is worn and dirty during the module transportation process,
- 3 Reduce the disposal of waste ties and wooden waste, which is more in line with the concept of environmental protection
- 4 The size can be customized, and the construction is more convenient and quick.



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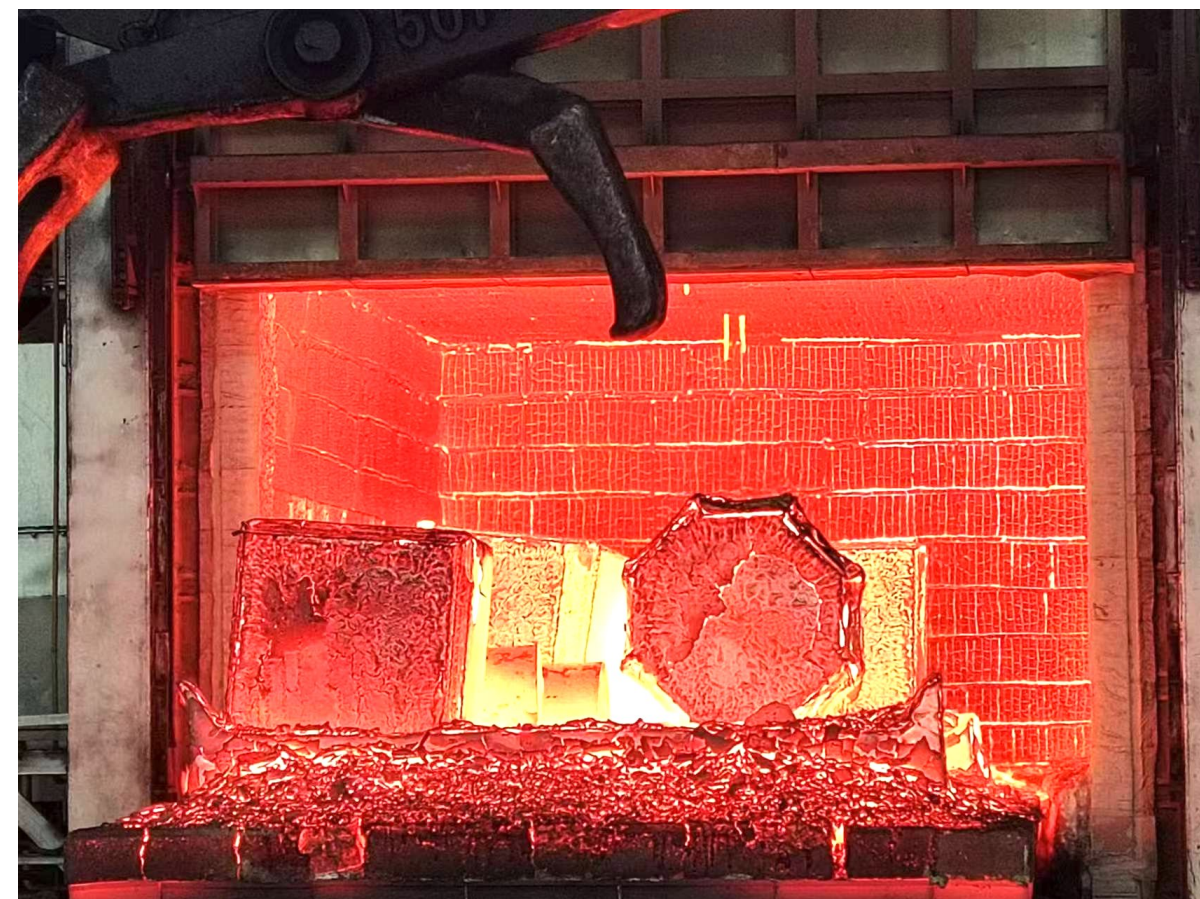
Chromium-Zirconium Composite Module

Uining temperature
1250°C-1300°C

Product Introduction

The ceramic fiber chromium-zirconium composite module is made of zirconium-containing and chromium-containing fiber needle-punched blankets, which are compositely folded to make full use of the high temperature resistance of the chromium-containing fiber blanket and the thermal insulation performance of the zirconium-containing fiber blanket. The operating temperature can reach 1250-1300 degrees Celsius.

It is widely used in steel forging heating furnaces.



Forging heating furnace capacity: 100m³

Chromium Modules

Uining temperature
1300°C-1350°C

Product Introduction

The ceramic fiber chromium module is formed by folding the chromium fiber needle-punched blanket and matching it with anchor bolts, making full use of the high temperature resistance of the chromium fiber blanket. The operating temperature can reach 1300-1350 degrees Celsius.

It is widely used in steel forging heating furnaces.



1500 chrome modules



Regenerative forging heating furnace
capacity:80m³

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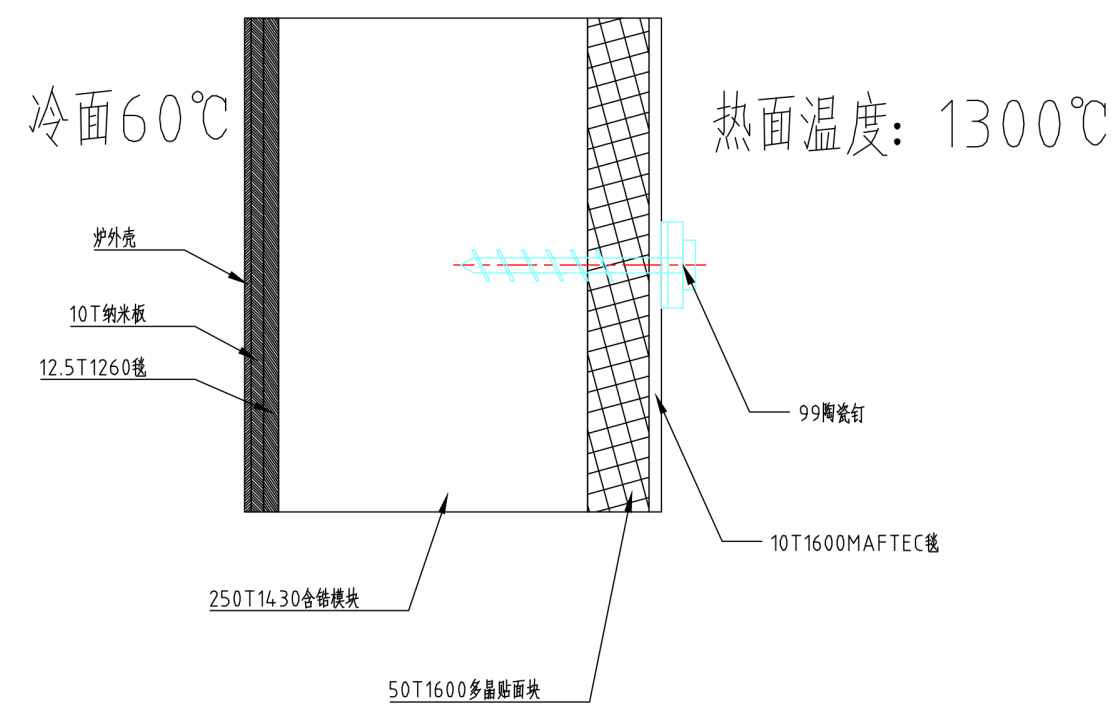
Zirconium + 1600 polycrystalline mullite veneer block
1600MAFTEC composite module A

Product Introduction

The ceramic fiber chromium-zirconium composite module is made of zirconium-containing and chromium-containing fiber needle-punched blankets, which are folded together to make full use of the high temperature resistance of the chromium-containing fiber blanket and the thermal insulation performance of the zirconium-containing fiber blanket. The operating temperature can reach 1250-1300 degrees Celsius.

It is widely used in sanitary ware ceramic

使用温度: 1300℃炉衬设计
环境温度: 25℃



Zirconium + 1600 polycrystalline mullite veneer block
1600MAFTEC composite module A

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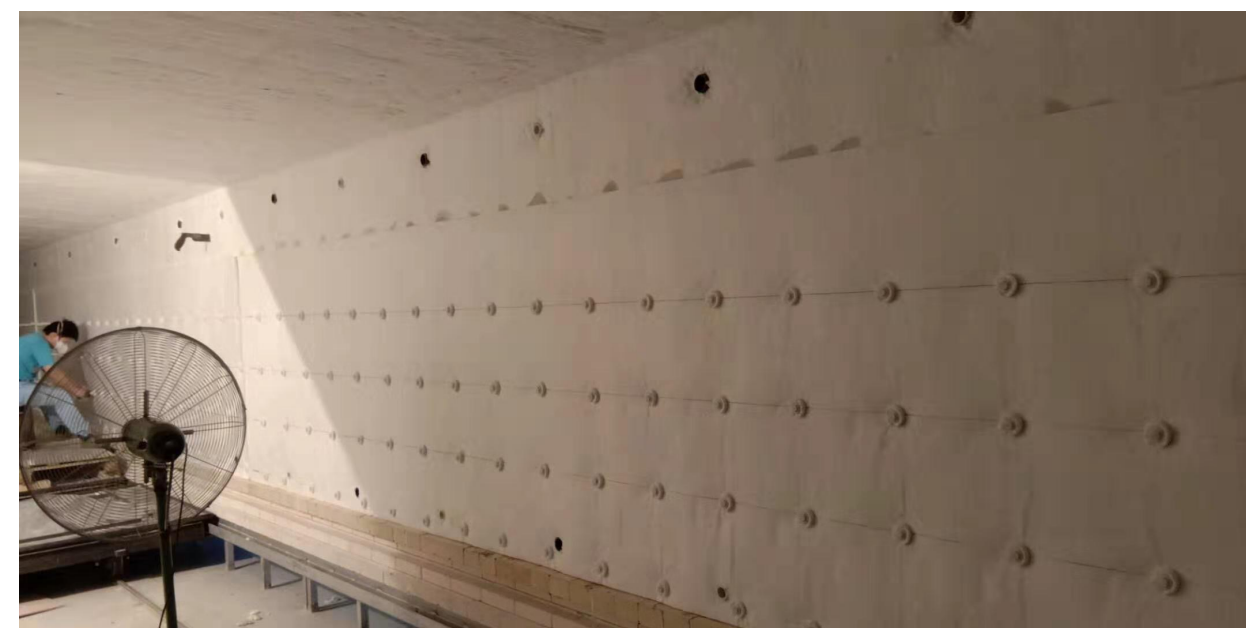
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Using temperature
1280 °C-1320°C



Installation diagram of composite module A



Industrial ceramic tunnel kiln
volume: 100m³

Zirconium-containing + MAFTEC blanket composite module B

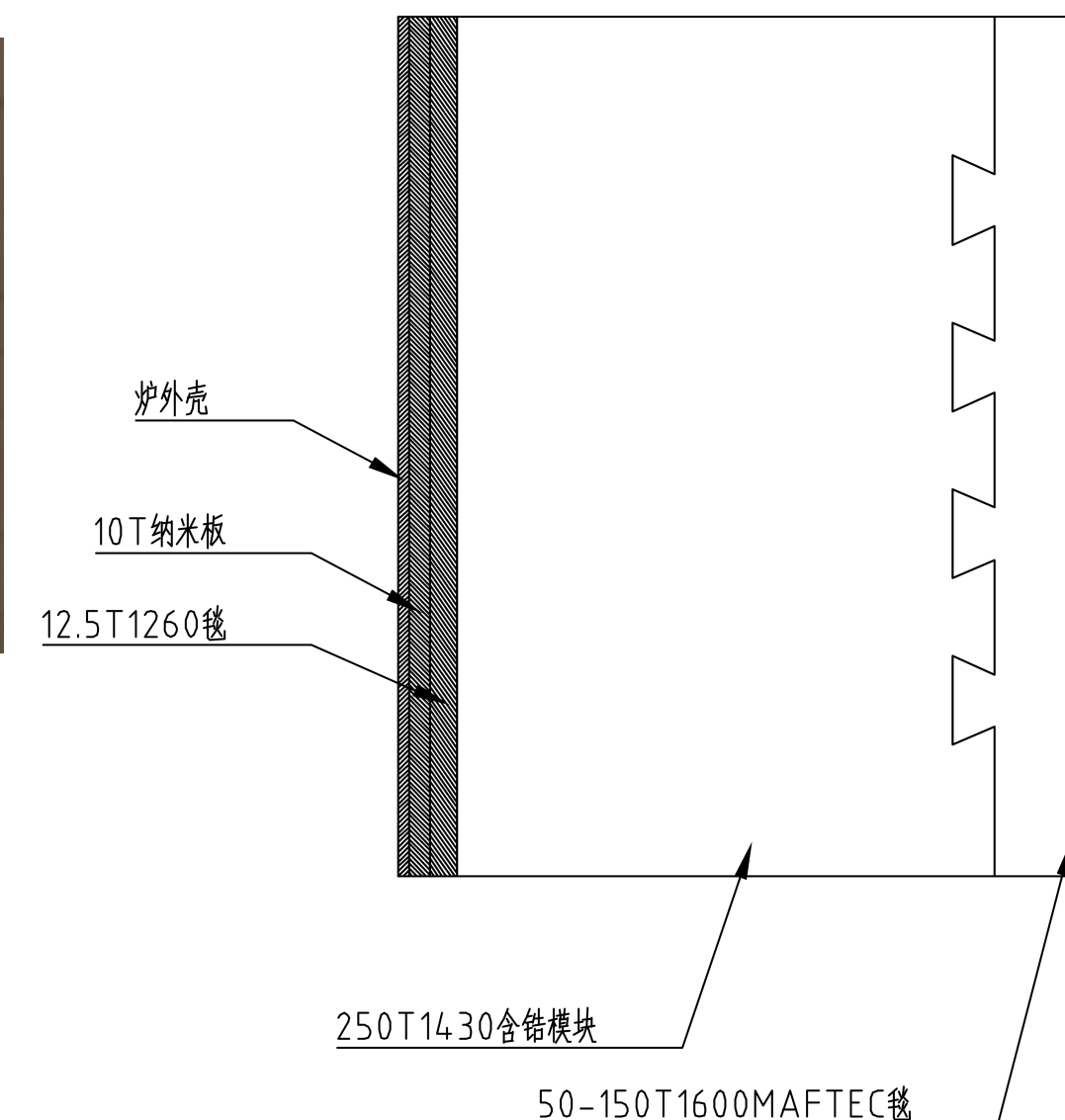
Product Introduction

The ceramic fiber chromium module is formed by folding the chromium fiber needle-punched blanket and equipped with anchor bolts, making full use of the high temperature resistance of the chromium fiber blanket, and the operating temperature can reach 1300-1350 degrees Celsius.

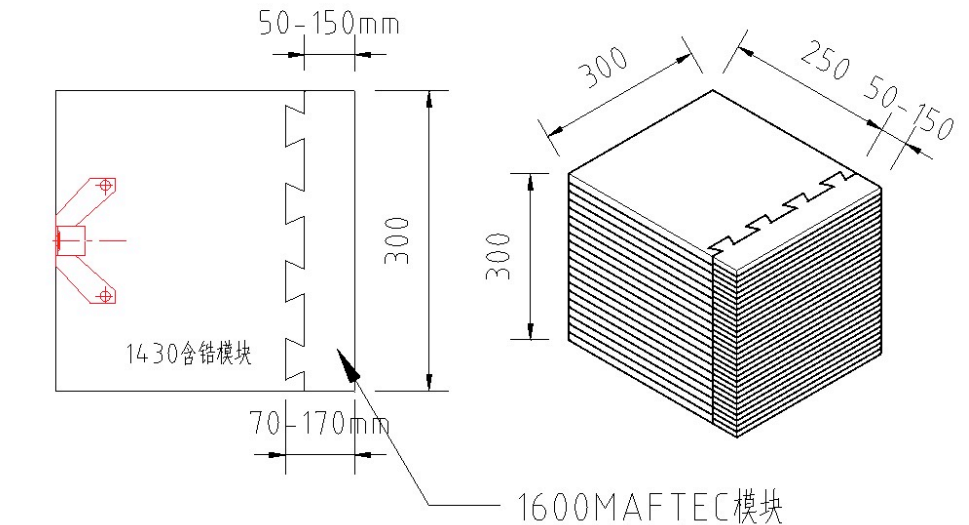
It is widely used in special industrial ceramic shuttle kilns.

使用温度: 1350-1450℃炉衬设计

Modular structure design



Using temperature
1320°C-1400 °C



Zirconium-containing + MAFTEC blanket composite module B



Installation diagram of composite module B

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Anchoring System

Product Introduction

Anchors are structural parts that connect and fix lightweight refractory materials such as ceramic fibers, lightweight insulation bricks, and amorphous refractory materials to the metal wall panels of the kiln. Anchors of different structures and materials should be selected according to the structure of the industrial kiln, the furnace temperature, and the ambient atmosphere. According to the environment and state in which the anchors are used on different equipment, they can be divided into angle iron anchors for bracket modules, diamond anchors, butterfly anchors, hanging anchors, and corner anchors; herringbone anchors, quick cards, rotating cards, piercing bars, screw nuts, piercing bars, U-shaped piercing nails, and V-shaped nails for folding blocks. Anchors are made of 201/304/310/316 and other materials, and the temperature range can be from 700°C to 1400°C. There are various forms, such as one-shaped, cross-shaped, L-shaped, etc., and the anchor structure is reasonable and the structure is integrated. During construction, the installation is simple and fast, and the anchoring is firm and reliable. Hengrui High Temperature Energy Saving Materials Co., Ltd. is a professional manufacturer and R&D company of refractory ceramic fiber products. We can select anchoring structures of different materials and models according to customer requirements and furnace structure. The following are several commonly used anchoring structures for our ceramic fiber modules



Bolt classification

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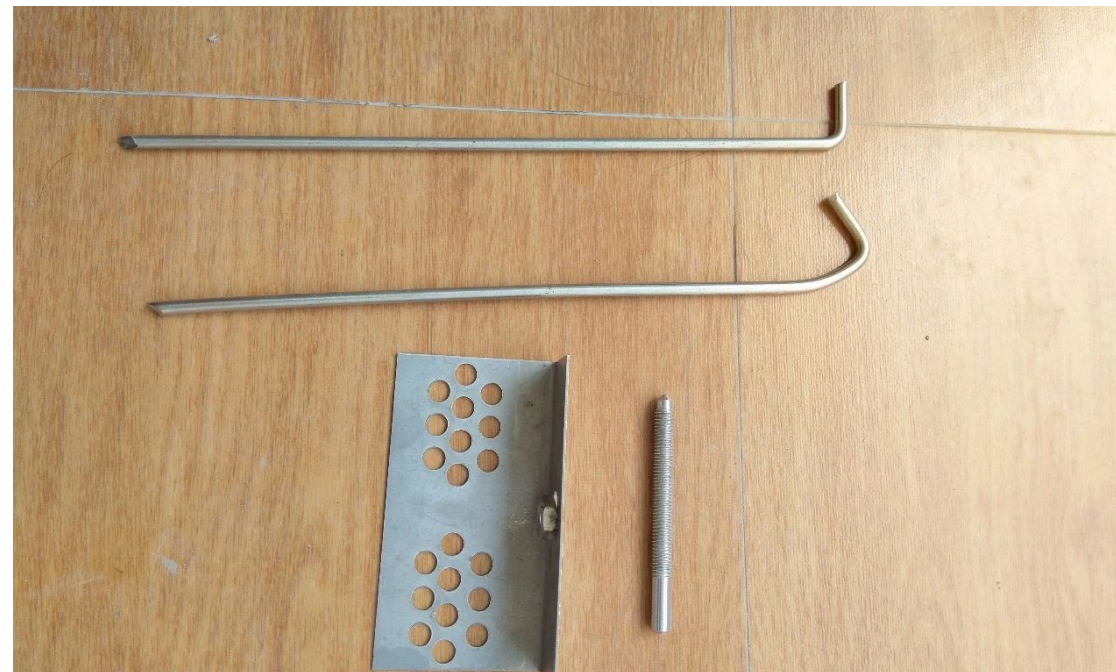
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Anchoring System



Diamond Anchor



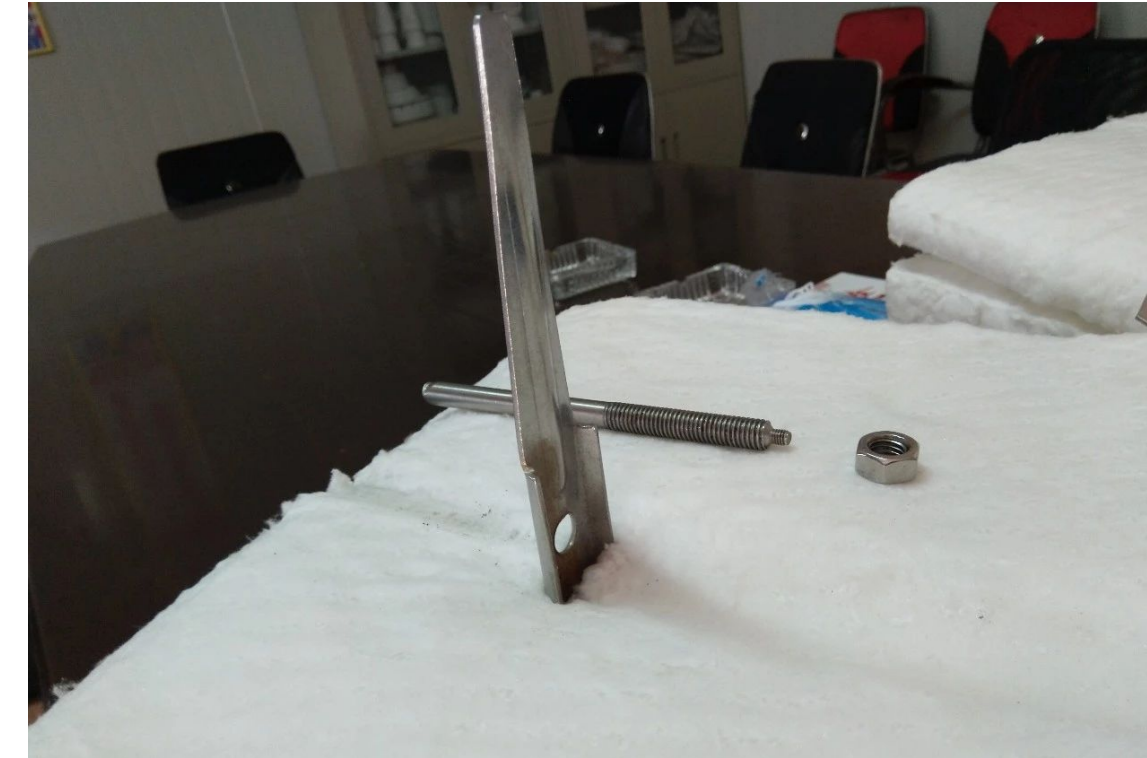
Side-insertion Anchor



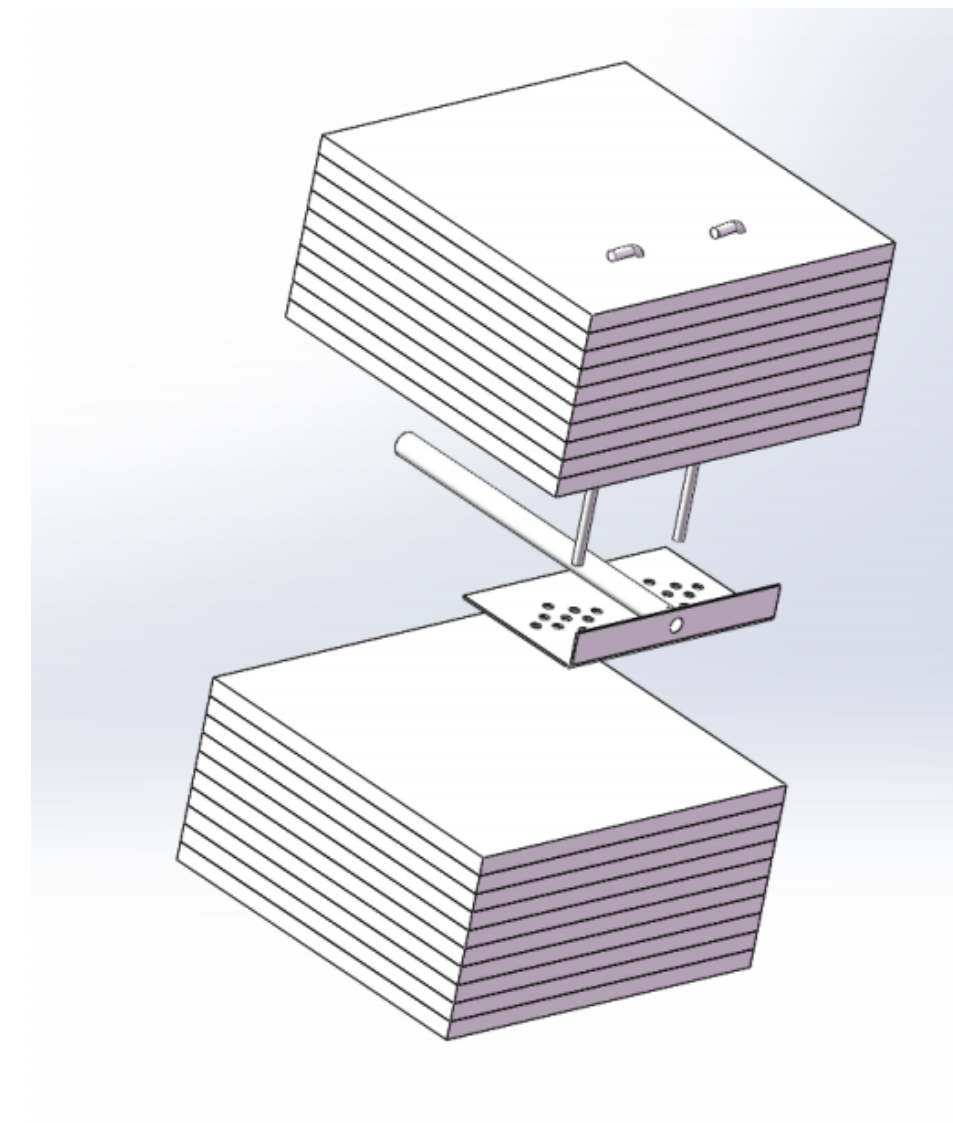
M-type anchor

Anchoring System

Anchor Module Production Methods



Diamond Anchor

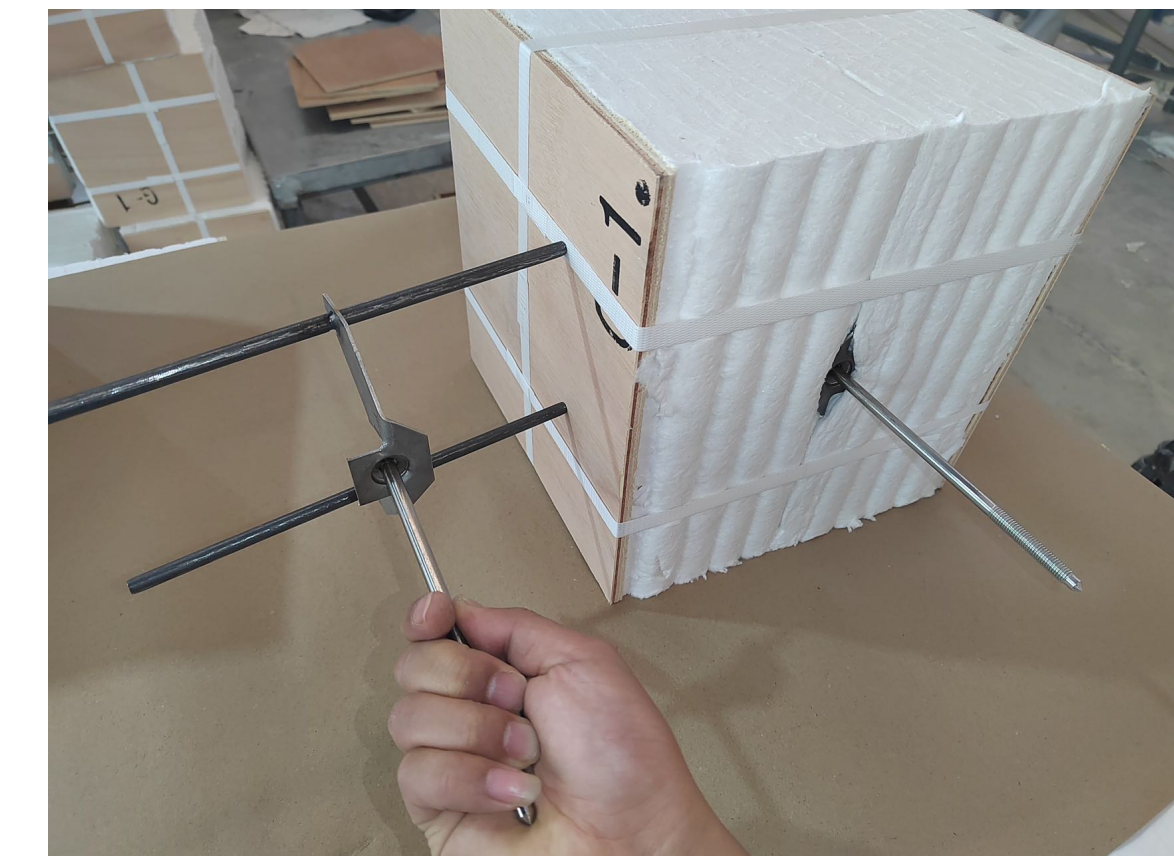


Side-insertion Anchor

Anchoring System



M-type anchor lifting installation



M-type anchor lifting installation

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Kiln module design

Kiln module design case

Kiln module design case

Product Introduction

Aiming at the diversified furnace types, diversified heating sources and complicated construction in industries such as iron and steel metallurgy, petrochemicals, enamel ceramics, and non-ferrous metal smelting. We have 15 years of experience in manufacturing, designing, and constructing lightweight refractory insulation materials. We can provide kiln lightweight module design, manufacturing, and construction services based on the customer's furnace type, heating source, and heating materials.

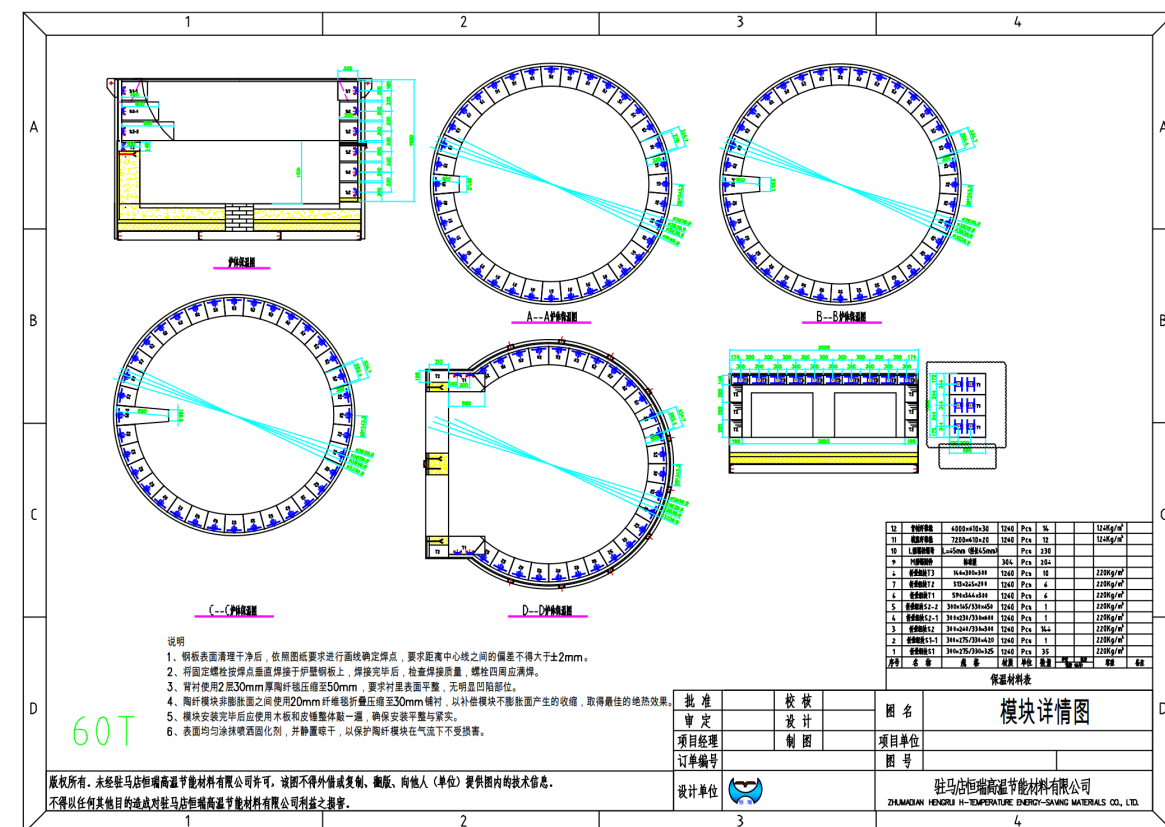
Ceramic fiber modules are ceramic fiber blankets that are folded, sliced, compressed, packaged, and made into blocks, and equipped with anchors. This modular design makes the installation process more intuitive and convenient, reducing the need for on-site processing and cutting. The kiln module design can greatly improve construction efficiency. Individuals who have received simple training can carry out installation work under the guidance of technical workers, thereby shortening the construction period and reducing construction costs.

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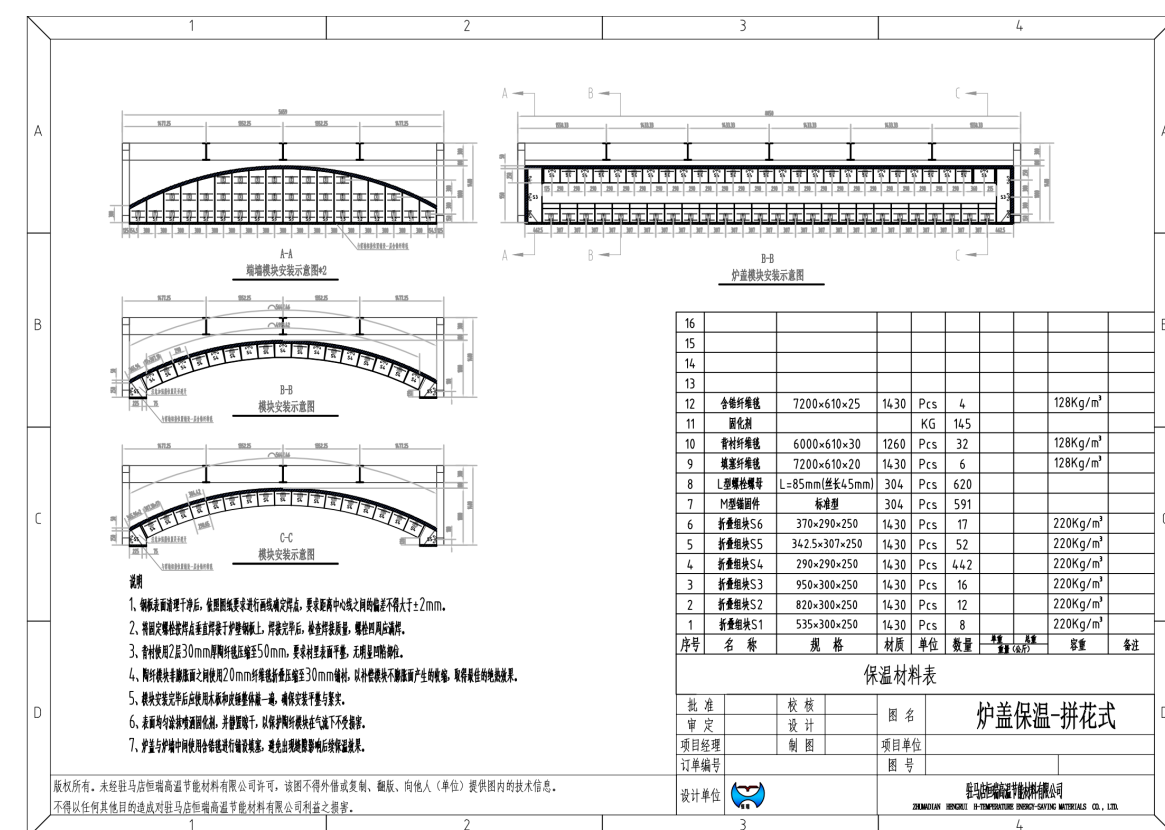
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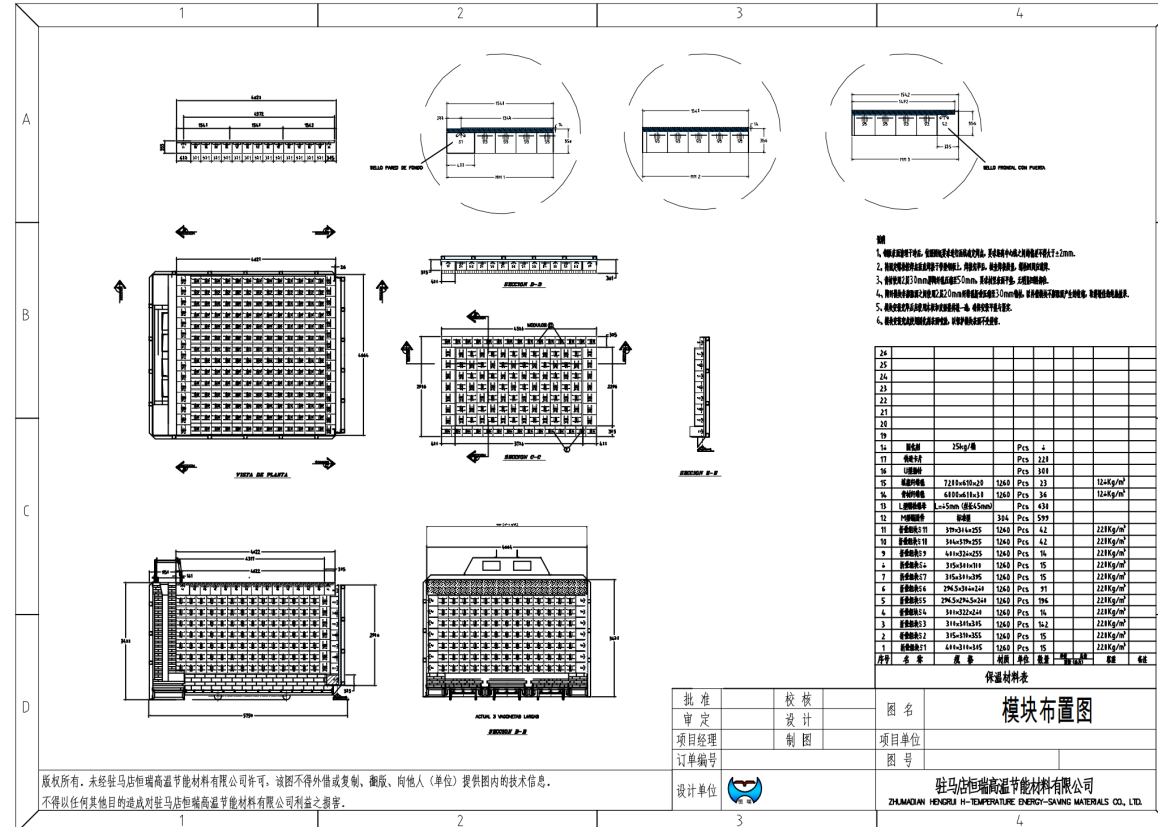
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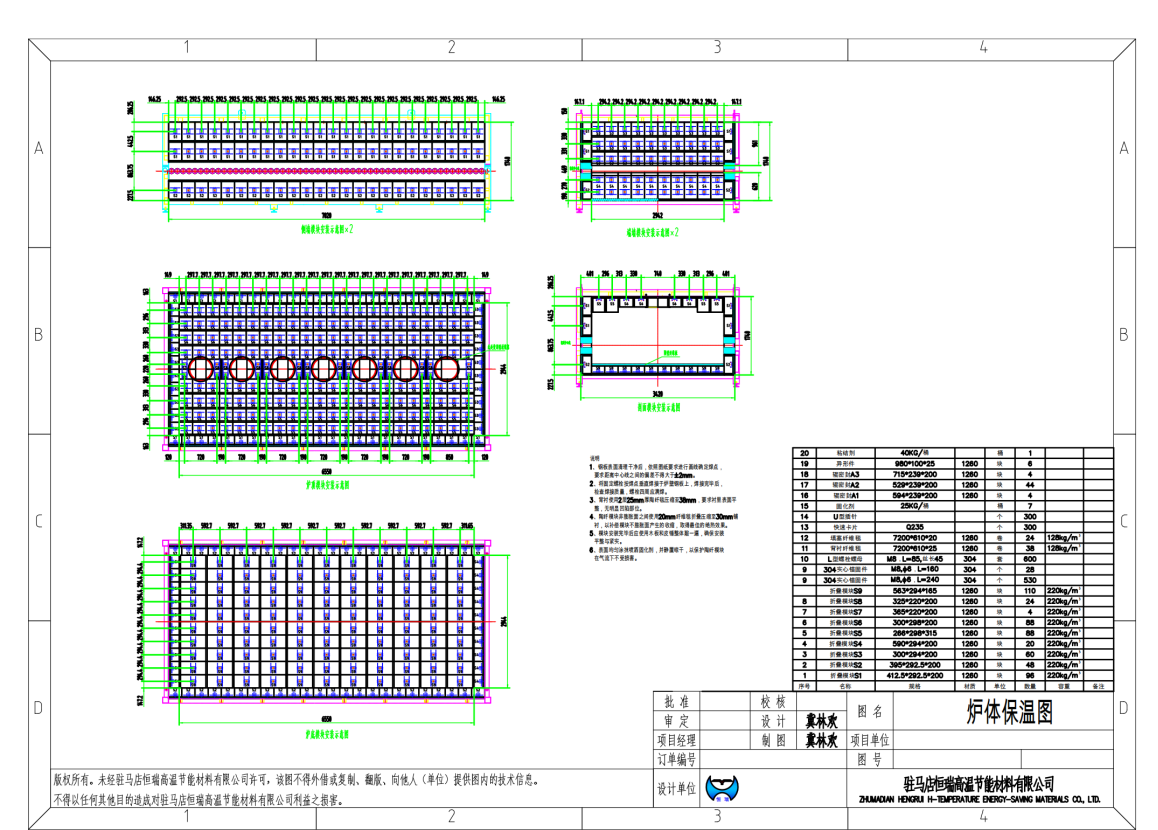
60T Module design of kilns for non-ferrous metal industry



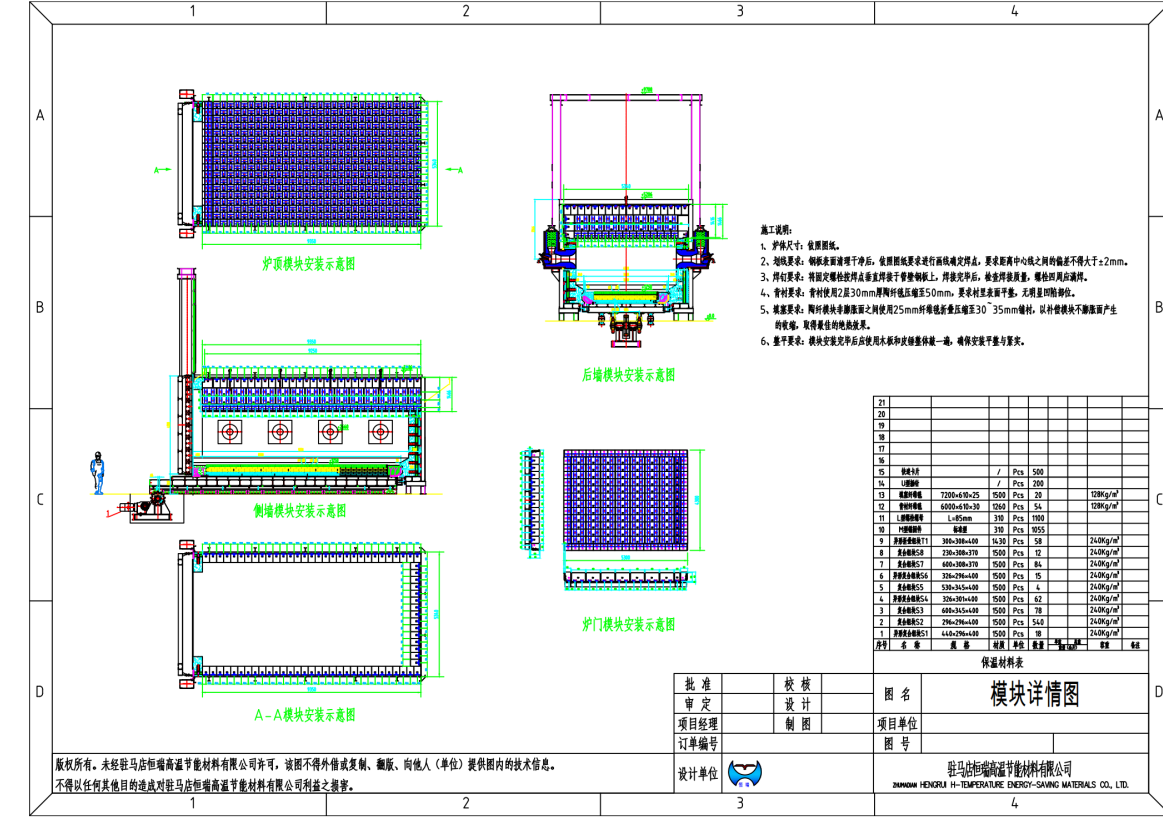
Design of insulation module for carbon roasting furnace cover



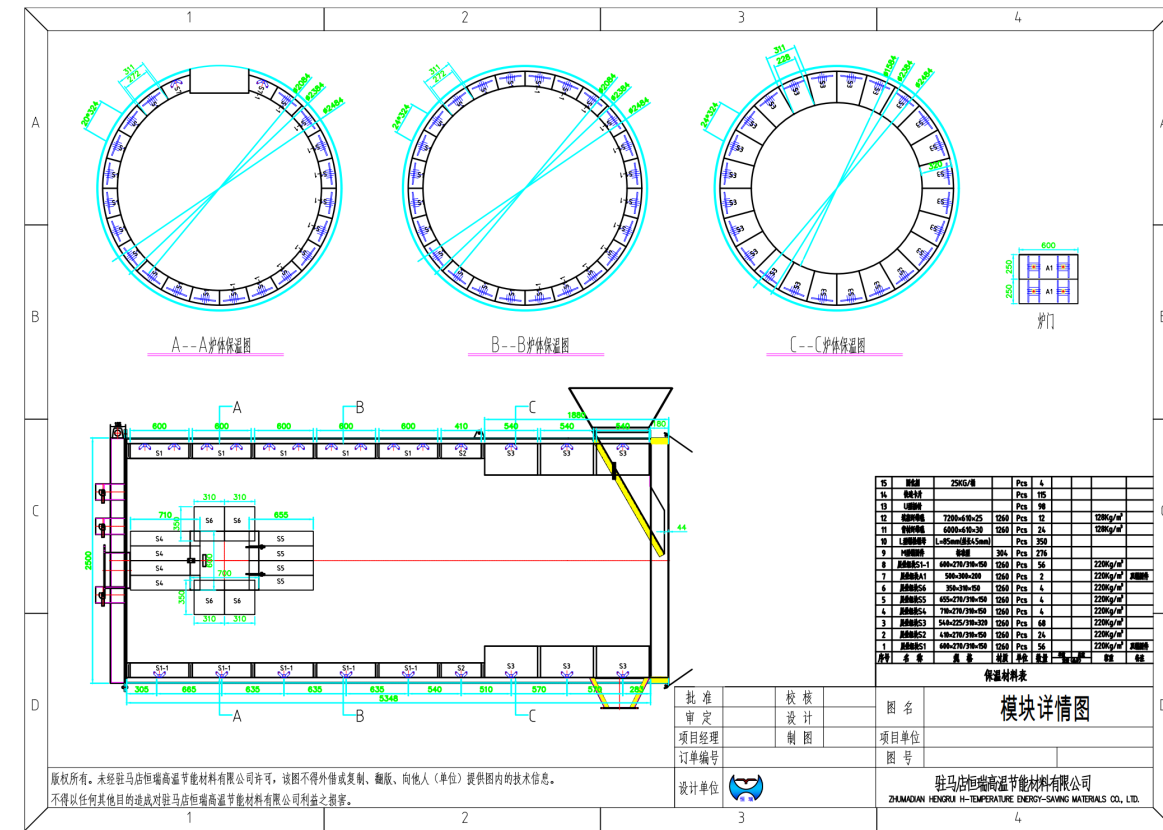
65m³ Modular design of heat treatment furnaces in the metal industry



Design of insulation module for glass tempering furnace



120m³ Modular Design of Natural Gas Forging Heating Furnace



Design of thermal insulation module for gas hot blast furnace

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