

## Z-Blok 3 Modules



### TYPE

Convoluted blanket anchored modules

### TEMPERATURE

Kaowool S/Cerablanket :	1260°C
Kaowool SZr/Cerachem Blanket :	1425°C
Cerachrome Blanket :	1425°C

The maximum continuous use temperature depends on the application. In case of doubt, refer to your local Morgan Thermal Ceramics distributor for advice.

### TYPICAL APPLICATIONS

Z-Blok 3 has a multitude of uses in heat containment applications in all industry groups, a selection of which are as follows:

#### Petrochemical

Process heaters, reformers, ductwork and pyrolysis heaters.

#### Iron and Steel

Transfer ladle lids, soaking pit covers, reheating furnace, multi and single stack coil annealing furnaces, continuous annealing and coating furnaces, rotary hearth furnaces, car bottom furnaces, roller furnaces, lift-off furnaces, offtakes and ductwork.

#### Aluminium

Soaking pits and covers, bale out furnaces, homogenising furnaces and ductwork.

#### Ceramic

Tunnel kilns for whiteware and red brick, intermittent kilns for whiteware and red brick, Hoffman Kilns and ductwork.

#### Utilities

Thermal oxidisers, waste heat recovery units, combustion chambers and boiler ductwork.

### DESCRIPTION

Z-Blok 3 side-fix modules are convoluted blanket modules which combine the excellent thermal characteristics and proven service performance of Thermal Ceramics' Z-Bloks with the ease of installation and versatility of the T-Bar anchoring system.

They are made from high quality spun-fibre Blanket, folded and pre-compressed to a specified density, and held in position with 2 stainless steel tubes, mounted transversely within the module. The modules can be supplied encapsulated in plastic film, which ensures dust levels are kept to a minimum during installation. During installation, the modules are further compressed, the resilience of the fibre and recovery after the restraining bands are removed ensuring tightly-compressed intermodular joints.

### FEATURES

- The Z-Blok 3 module offers several advantages to both the furnace constructor and the end-user
- The Z-Blok 3 module maintains the light weight, thermal efficiency and resistance to thermal shock characteristics of ceramic fibre linings
- The decompression of the blanket folds gives tightly sealed inter-modular joints
- The resilience of the blanket can accommodate some flexure of the furnace casing without opening gaps between modules
- The unique T-Bar fixing system is exceptionally simple and quick to install
- The resilient blanket is resistant to mechanical damage
- Where damage occurs, individual modules can be easily replaced
- It is versatile and the modules can easily be cut, on site to suit awkward configurations
- The anchor system is buried inside the module and close to the casing. The metal components are therefore maintain at low temperature
- The ASTM 316 stainless steel has a high corrosion resistance and maintains its creep strength to a relatively high temperature
- The system ensures that the fibre is pulled back into intimate contact with the furnace casing or any substrate with no bridging of irregularities, thus eliminating convective heat transfer behind the lining
- The system readily adapts to include vapour barriers and backing blankets

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## Z-Blok 3 Modules

### Main Properties

		Kaowool S/ Cerablanket	Kaowool SZr/ Cerachem Blanket	Cerachrome Blanket
Classification temperature	°C	1260	1425	1425
<b>Properties Measured at Ambient Conditions (23°C/50% RH)</b>				
Colour		white	white	blue/green
Density (Kg/m <sup>3</sup> )	kg/m <sup>3</sup>	128 to 160	128 to 160	128 to 160
<b>High Temperature Performance</b>				
Specific heat capacity at 1090°C	kJ/kg.K	1.13	1.13	1.13

### Thermal conductivity for all three grades, at density and mean temperature:

		128kg/m <sup>3</sup>	160kg/m <sup>3</sup>
400°C	W/m.K	0.12	0.11
600°C	W/m.K	0.19	0.16
800°C	W/m.K	0.27	0.23
1000°C	W/m.K	0.36	0.31

### Fixing Components

The studs and nuts are M6 threaded in ASTM 316 stainless steel, unless otherwise specified by the customer. The standard T-Bar yokes are in ASTM 316 stainless steel, but higher grades of steel (ASTM 310 or Inconel 601) are available for more arduous service conditions.

### Dimensions & Availability

- The modules as normally supplied are 305mm square and thickness ranging from 100mm to 350mm in 25mm steps, though other sizes and densities are available on request.
- T-Bar yokes, studs and nuts are supplied as separate items, to be included in an order. It is recommended that the order includes sufficient spare studs to cater for setting-up the welding conditions and allow for any mis-fires.

### Packaging

Z-Blok 3 are packed in cartons or on pallets which are shrink wrapped.

### Installation

Full details of the recommended technique for installing Morgan Thermal Ceramics modules are included in our Module Installation Manual.

The values given herein are typical values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Therefore, the data contained herein should not be used for specification purposes. Check with your Thermal Ceramics office to obtain current information.

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