

Data sheet

# IFB Insulation Range: Temperatures 1100 - 1315°C (2000 - 2400°F)

ENGLISH

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## Description

**The Insulation Range of Insulating Fire Brick (IFB) for applications where temperatures are 1100°C - 1650°C (2000°F - 3000°F).**

The K<sup>®</sup> and JM<sup>™</sup> IFB ranges, manufactured via cast process, are market leaders in applications such as Petrochemical and Ceramics where the ability to operate in environments above 1000°C (1800°F) is critical.

With low thermal conductivity, due to the unique manufacturing process, the IFB's deliver the perfect balance of low density and homogenous porosity. Our IFB range delivers big energy savings for many markets and our global manufacturing footprint enables Morgan to meet your regional and global application demands.

## Type

Insulating firebricks.

## Classification temperature

1100°C (2000°F)

1260°C (2300°F)

1315°C (2400°F)

## Maximum continuous use temperature

The maximum continuous use temperature depends on the application. Please contact your local Morgan Advanced Materials representative for technical advice and guidance.

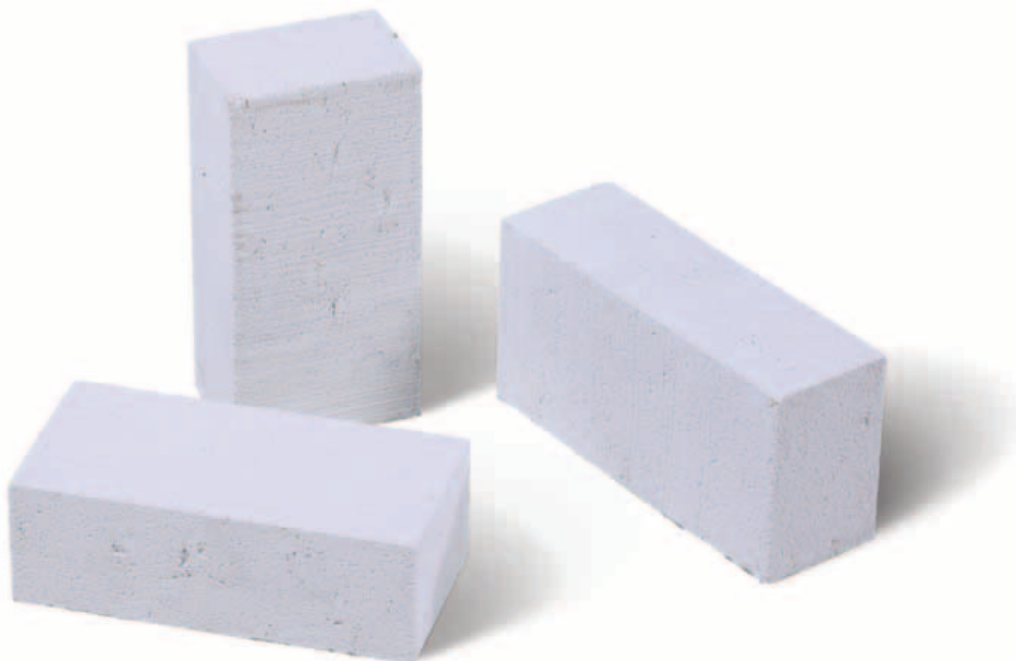
## Features:

- IFB production by casting delivers products with superior thermal insulation. This support the design of thinner insulation layers
- Properties are achieved by casting, such as reduced weight and low thermal conductivity reduce heat absorption, contributing to significant energy savings
- Low iron and alkali flux content gives high refractoriness under load in operating conditions
- Available in large size up to 230 x 610 x 76mm (9 x 24 x 3") and 250 x 640 x 64mm (10 x 25 x 2½") which can be machined into special shapes, limiting the need for multiple sections and joints
- Low thermal conductivity
- Low heat storage
- Purity
- High hot compressive strength
- A comprehensive range of mortars is available to enable long last joints with superior performance

## Typical Applications

While commonly used in back-up insulation they may also be used as hot face in selected applications. Overall uses include:

- Aluminium (anode bake furnaces, primary electrolytic cells, holding and melting furnaces and secondary re-melt furnaces)
- Petrochemical (kilns, flues, refining vessels and heaters and reactor chambers)
- Iron and steel industry (heat treatment and galvanising)
- Coke and iron making (blast furnaces, hot blast stoves, hot blast and bustle main)
- Hobby and laboratory kilns
- Ceramic industry (including kilns for domestic use)
- Glass industry



## Data sheet

## Metric and Imperial information

## IFB Insulation Range: Temperatures 1100 - 1315°C (2000 - 2400°F)

	TJM™20	TJM23	JM23	K®23
ISO 2245 Classification	-	-	125 0.5L	-
Manufacturing Method	Extrusion	Extrusion	Cast	Cast
Manufacturing Location	AS	AS	EU	NA
Product Identification - printed on brick	TJM-20	-	23	23
<b>Physical Properties</b>				
Classification Temperature, °C (°F)	1100 (2000)	1260 (2300)	1260 (2300)	1315 (2400)
Density, kg/m³ (pcf), ASTM C-134	500 (31.2)	500 (31.2)	480 (29.9)	513 (32.0)
Modulus of Rupture, MPa (psi), ASTM C-133	0.7 (101.5)	0.7 (101.5)	1 (145)	0.79 (114.5)
Cold Crushing Strength, MPa (psi), ASTM C-133	0.8 (116)	1 (145)	1 (145)	1 (145)
Permanent Linear Shrinkage, % after 24 hrs, Soaking (ASTM C-210)				
@ 1070°C (1958°F)	-0.2	-	-	-
@ 1230°C (2246°F)	-	-0.2	-0.4	-
Reversible Linear Expansion, max. %	0.6	0.6	0.5	0.7
Deformation under hot load, % after 90 min. (ASTM C-16 JM brick tested according to ISO 3187)				
1100°C @ 0.034 Mpa (2012°F @ 5 psi)	0.1	0.1	0.1	-
Specific Heat Capacity, kJ/kg•K @ 1000°C (1832°F)	-	-	1.05	1.07
<b>Thermal Conductivity, W/m•K ( BTU•in/hr•ft²•°F ), ASTM C-182</b>				
200°C (392°F)	0.15 (1.04)	0.15 (1.04)	-	-
260°C (500°F)	-	-	-	0.13 (0.9)
400°C (752°F)	0.18 (1.25)	0.18 (1.25)	0.12 (0.83)	-
540°C (1004°F)	-	-	-	0.17 (1.18)
600°C (1112°F)	0.22 (1.53)	0.22 (1.53)	0.14 (0.97)	-
800°C (1472°F)	-	0.27 (1.87)	0.17 (1.18)	-
815°C (1499°F)	-	-	-	0.2 (1.39)
1000°C (1832°F)	-	0.32 (2.22)	0.19 (1.32)	-
1100°C (2012°F)	-	-	-	0.24 (1.67)
<b>Chemical Composition, %</b>				
Al2O3	43	45	37	38.3
SiO2	50	48	44.4	44.3
Fe2O3	1	1	0.8	0.3
TiO2	0.8	0.8	1.2	1.6
CaO	0.8	0.8	15.2	15
MgO + Na2O + K2O	1.7	1.7	1.4	0.5

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