

Data sheet

ENGLISH

**IFB Structural Range:** Temperatures 1200 - 1430°C (2190 - 2600°F) **Metric and Imperial information - Page 2**

**Description**

The Structural Range of IFB for applications where temperatures are 1200°C - 1430°C (2200°F - 2600°F).

These products offer superior performance in load bearing applications and in conditions where resistance to mechanical stress is needed together with good insulation.

Our Structural Range of IFB deliver significant energy savings for many markets. Our worldwide footprint enables us to meet your regional and global application demands via a global network of sales and engineering experts.

**Type**

Insulating firebricks.

**Classification temperature**

- 1200°C (2200°F)
- 1260°C (2300°F)
- 1300°C (2400°F)
- 1350°C (2450°F)
- 1400°C (2550°F)
- 1430°C (2600°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.

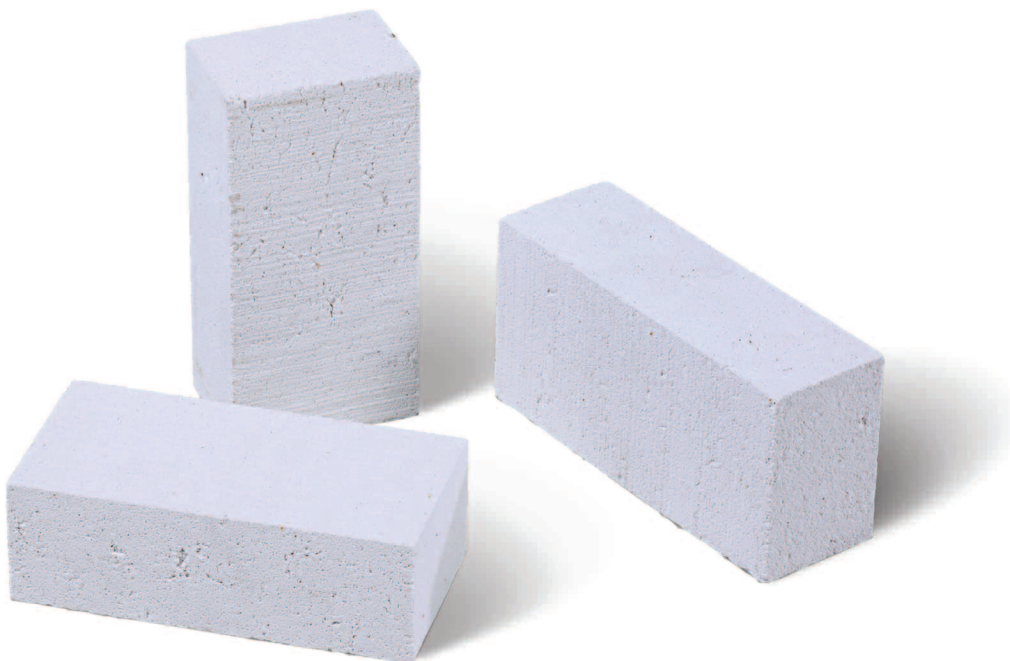
**Features:**

- Different production processes are in place with a common goal of delivering a product which provides both mechanical and thermal properties
- The light weight and low thermal conductivity reduce heat absorption, producing significant energy savings and emissions
- Low iron and alkali flux content gives high refractoriness under load in operating conditions
- Available in multiple sizes, up to 700mm (27½") in length and 100mm (4") thickness, which can be machined into special shapes or installed, reducing the need for multiple sections and joints
- A comprehensive range of mortars is available to enable long last joints with superior performance

**Typical Applications**

Hot face refractory lining or as back-up insulation in:

- 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)
- Ceramic industry (including kilns for domestic use)
- Glass industry
- Power generation



Data sheet

Metric and Imperial information

# IFB Structural Range: Temperatures 1200 - 1430°C (2190 - 2600°F)

	TJM™ B4	K®23 HS	TJM™ B5	TJM™ C1	JM™25 HD	TJM™ 26C	TJM™ B6	TJM® C2	JM™26 HD
<b>Manufacturing Method</b>	Extrusion	Cast	Extrusion	Extrusion	Slinger	Extrusion	Extrusion	Extrusion	Slinger
<b>Manufacturing Location</b>	China	US	China	China	Italy	China	China	China	Italy
<b>Properties</b>									
<b>Classification Temperature (°C)</b>	1200	1260	1300	1300	1350	1400	1400	1400	1400
<b>Classification Temperature (°F)</b>	2200	2300	2400	2400	2450	2550	2550	2550	2600
<b>Density (kg/m³) (ASTM C-133)</b>	800	714	800	1000	880	800	800	1100	920
<b>Density (pcf) (ASTM C-133)</b>	49.92	44.5536	49.92	62.4	54.912	49.92	49.92	68.64	57.408
<b>Modulus of Rupture (MPa) (ASTM C-133)</b>	1.2	1.2	1.2	2.1	2	1.2	1.8	3	2.2
<b>Modulus of Rupture (psi) (ASTM C-133)</b>	174	174	174	304.5	290	174	261	435	319
<b>Cold Crushing Strength (MPa) (ASTM C-133)</b>	2	2.8	2	3.5	2.7	1.8	2.5	4	3.5
<b>Cold Crushing Strength (psi) (ASTM C-133)</b>	290	406	290	507.5	391.5	261	362.5	580	507.5
<b>Perm Linear Shrinkage (ASTM C-210) % after 24 hrs Soak</b>									
@ 1200°C (2192°F)	-1	-	-	-	-	-	-	-	-
@ 1230°C (2246°F)	-	-0.1	-	-	-	-	-	-	-
@ 1300°C (2372°F)	-	-	-0.5	-0.5	-0.5	-	-	-	-
@ 1400°C (2552°F)	-	-	-	-	-	-0.8	-0.5	-0.5	-0.3
<b>Reversible Linear Expansion, maximum %</b>	0.7	-	0.7	0.7	0.7	0.7	0.7	0.7	0.7
<b>Deformation Under Hot Load (ASTM C-16) % after 90 min.</b>									
JM Brick tested	1100°C @ 0.034 (2012°F @ 5 psi)	0.2	-	0.2	0.1	-	0.1	-	-
according to ISO 3187	1260°C @ 0.069 (2300°F @ 10 psi)	-	-	-	-	0.7	0.3	0.2	0.1
<b>Thermal Conductivity (W/m·K) (ASTM C-182)</b>									
@ 200°C	0.24	-	0.2	0.28	-	0.25	0.28	0.34	-
@ 260°C	-	0.17	-	-	-	-	-	-	-
@ 400°C	0.26	-	0.24	0.3	0.38	0.27	0.29	0.36	0.33
@ 540°C	-	0.2	-	-	-	-	-	-	-
@ 600°C	0.28	-	0.3	0.34	0.39	0.29	0.32	0.38	0.35
@ 800°C	0.3	-	-	0.38	0.4	0.32	0.36	0.42	0.37
@ 815°C	-	0.23	-	-	-	-	-	-	-
@ 1000°C	0.34	-	-	0.42	0.41	0.36	0.4	0.46	0.39
@ 1100°C	-	0.27	-	-	-	-	-	-	-
@ 1200°C	-	-	-	-	0.43	-	-	-	-
<b>Thermal Conductivity (BTU·in/hr·ft²·°F) (ASTM C-182)</b>									
@ 392°F	1.67	-	1.39	1.94	-	1.73	1.94	2.36	-
@ 500°F	-	1.18	-	-	-	-	-	-	-
@ 752°F	1.80	-	1.67	2.08	2.64	1.87	2.01	2.50	2.29
@ 1004°F	-	1.39	-	-	-	-	-	-	-
@ 1112°F	1.94	-	2.08	2.36	2.71	2.01	2.22	2.64	2.43
@ 1472°F	-	-	-	-	2.78	2.22	-	-	2.57
@ 1499°F	-	1.60	-	-	-	-	-	-	-
@ 1832°F	-	-	-	-	2.84	2.50	-	-	2.71
@ 2012°F	-	1.87	-	-	-	-	-	-	-
@ 2192°F	-	-	-	-	2.98	-	-	-	-
<b>Chemical Composition %</b>									
Al <sub>2</sub> O <sub>3</sub>	45	38	45	45	48	50	55	55	58
SiO <sub>2</sub>	50	48	48	49	48.6	45	41	41	38.8
Fe <sub>2</sub> O <sub>3</sub>	1	0.6	1	0.9	0.7	0.9	0.9	0.9	0.7
TiO <sub>2</sub>	0.6	1.5	0.6	-	0.5	0.6	-	-	0.3
CaO	0.5	11	0.5	-	0.1	0.4	-	-	0.1
MgO	0.2	-	0.2	-	-	0.2	-	-	-
MgO + Na <sub>2</sub> O + K <sub>2</sub> O	-	0.7	-	-	1.9	-	-	-	1.9
Na <sub>2</sub> O + K <sub>2</sub> O	1	-	1	1	-	-	0.9	1	-
<b>CO Attack (popouts after 200 hrs) (ASTM C-288)</b>	-	-	-	-	Class A	-	-	-	Class A

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