

## High-Alumina Brick

### Description:

High-alumina brick is a kind of neutral refractory materials made from bauxite or other raw materials with a high alumina ( $\text{Al}_2\text{O}_3$ ) content, which contain more than 48% alumina and is formed and calcined at high temperatures. They offer excellent high-temperature resistance, corrosion resistance, thermal stability, and slag resistance, making them particularly suitable for equipment and processes running at high temperatures for a long time.



### Technical Data:

Item	Grade						
	LZ-80	LZ-75	LZ-70	LZ-65	LZ-55	LZ-48	LZ-65G
$\omega(\text{Al}_2\text{O}_3) / \%$	$\geq 80$	$\geq 75$	$\geq 70$	$\geq 65$	$\geq 55$	$\geq 48$	$\geq 65$
Open Porosity / %	$\leq 21(23)$	$\leq 24(26)$	$\leq 24(26)$	$\leq 24(26)$	$\leq 22(24)$	$\leq 22(24)$	$\leq 19$
CCS / MPa	$\geq 70(60)$	$\geq 60(50)$	$\geq 55(45)$	$\geq 50(40)$	$\geq 45(40)$	$\geq 40(35)$	$\geq 60$
	$\geq 60(50)$	$\geq 50(40)$	$\geq 45(35)$	$\geq 40(30)$	$\geq 35(30)$	$\geq 30(35)$	$\geq 50$
R.U.L. (0.2 MPa $T_{0.6}$ ) / °C	$\geq 1530$	$\geq 1520$	$\geq 1510$	$\geq 1500$	$\geq 1450$	$\geq 1420$	$\geq 1500$
HPLC / %	1500°C×2 h 0.4~0.2			1450°C×2 h 0.4~0.1			1450°C×2 h 0.2~0

Remarks: The data in parentheses are for the lattice bricks and shaped bricks.

High Alumina Silicon-Carbide Brick

Description :

High alumina silicon carbide brick refers to a high-performance refractory material made primarily from high alumina bauxite and silicon carbide. It features a high refractoriness and good thermal conductivity, high-temperature strength and thermal shock resistance.



Technical Data :

Item	Grades		
	GM1 650	GM1 600	GM1550
Al <sub>2</sub> O <sub>3</sub> /%≥	65	63	60
SiC/%≥	5	5	5
Bulk Density / (g/cm <sup>3</sup> )≥	2.65	2.60	2.55
Open Porosity /%≤	17	17	19
CCS/MPa≥	85	90	90
0.2 MPa R.U.L T <sub>0.6</sub> /°C≥	1650	1600	1550
TSR(1100°C, Cold Water) / cycles≥	10	10	12
Abrasive Resistance/cm <sup>3</sup> ≥		5	

## Phosphate Bonded Alumina Wear-resistant Brick

### Description:

Phosphate bonded alumina wear-resistant brick is a kind of refractory brick made primarily from high alumina bauxite clinker, corundum, and mullite, using a phosphate chemical bonding process. These bricks feature high compressive strength, low porosity, excellent thermal shock resistance, good wear resistance, and strong anti-spalling performance.



### Technical Data:

Item	Grade					
	PA-80	PA-75	PA-70	PA-65	PA-60	PA-55
Al <sub>2</sub> O <sub>3</sub> / (%)	80	75	70	65	60	55
Bulk Density / (g/cm <sup>3</sup> ) ≥	3.0	2.9	2.8	2.7	2.6	2.5
Open Porosity / (%) ≤	12	14	15	16	17	18
CCS / MPa ≥	150	120	100	90	80	70
λ 1000°C [W/(m·K)]	/	2.0	2.0	2.0	2.0	2.0
R.U.L (0.2 MPa T <sub>0.6</sub> ) / °C ≥	1550	1500	1480	1450	1400	1350
TSR (1100 °C~ cold) ≥	10	10	10	10	10	10
Abrasion Resistance RT / cm <sup>3</sup>	5	5	5	5	5	5

## Magnesia Brick

### Description:

Magnesia brick is an alkaline refractory brick made primarily from high-purity sintered magnesia or fused magnesia, manufactured through high-temperature sintering or chemical bonding processes. These bricks offer excellent high-temperature performance, corrosion resistance and strength, making them widely used in high-temperature industrial-especially in equipment exposed to molten metals or strongly alkaline environments.



### Technical Data:

Item	Grade						
	M—98	M—97A	M—97B	M—95A	M—95B	M—91	M—89
$\omega(\text{MgO})/\% \geq$	97.5	97.0	96.5	95.0	94.5	91.0	89.0
$\omega(\text{SiO}_2)/\% \leq$	1.00	1.20	1.50	2.00	2.50	—	—
$\omega(\text{CaO})/\% \leq$	—	—	—	2.00	2.00	3.00	3.00
Apparent Porosity/ $\% \leq$	16	16	18	16	18	18	20
Bulk Density/( $\text{g}/\text{cm}^3$ ) $\geq$	3.00	3.00		2.95		2.90	2.85
CCS/MPa $\geq$	60	60		60		60	50
	50	50		50		50	45
R.U.L. / 0.2 MPa $T_{0.6}/^\circ\text{C} \geq$	1700	1700		1650		1560	1500
HPLC/ $\%$		1650°C×2h —0.2~0		1650°C×2 h —0.3~0		1600°C×2 h —0.5~0	1600°C×2 h —0.6~0

Magnesia-Alumina Spinel Brick

Description :

Magnesia-alumina spinel bricks are refractory materials primarily composed of magnesite (MgO) and bauxite (Al<sub>2</sub>O<sub>3</sub>), which form the spinel phase (MgAl<sub>2</sub>O<sub>4</sub>) through sintering. Spinel is a mineral with a high melting point, excellent thermal stability, and corrosion resistance. The adding of spinel enhances the overall performance of the bricks, especially high-temperature resistance, corrosion resistance and thermal shock resistance.



Technical Data :

Item	Grade			
	MA—90	MA—85	MA—80	MA—75
$\omega(\text{MgO})/\%$ ≥	90	85	80	75
$\omega(\text{Al}_2\text{O}_3)/\%$	3~8	5~12	8~17	8~12
Apparent Porosity/%≤	17	17	16	19
Bulk Density/(g/cm <sup>3</sup> )≥	2.90	2.95	2.95	2.85
CCS/MPa≥	45	45	55	40
	40	40	50	35
R.U.L./ 0.2 MPa T <sub>0.6</sub> /°C≥	1700	1700	1700	1650
Thermal Shock Resistance(1100°C~cold)≥	3	8	12	8

## Corundum Mullite Brick

### Description:

Corundum mullite brick is a high-performance refractory brick with both corundum phase and mullite phase. It is made of corundum and mullite as the main raw materials and calcined at high temperature.

Corundum mullite bricks can remain stable in a high temperature environment of 1790°C, and also have the advantages of high mechanical strength, good wear resistance, good thermal shock resistance, and stable chemical properties.



### Technical Data:

Items	Grades			
	GMZ-88	GMZ-85	GMZ-80	GMZ-75
$\omega(\text{Al}_2\text{O}_3)$ / %	≥88.0	≥85.0	≥80.0	≥75.0
$\omega(\text{Fe}_2\text{O}_3)$ / %	≤0.8	≤1.0	≤1.0	≤1.2
Open Porosity / %	≤15	≤16	≤18	≤18
Density / (g/cm <sup>3</sup> )	≥3.00	≥2.85	≥2.75	≥2.60
CCS / MPa	≥120	≥100	≥100	≥100
	100	80	80	60
R.U.L (0.2 MPa, T <sub>0.6</sub> ) / °C	≥1700	≥1680	≥1650	
HPLC (1600°C×3h) / %	-0.1~+0.1		-0.2~+0.2	
TSR(1100°C, Cold Water) / cycles	≥10	≥10	—	

## Chrome Corundum Brick

### Description:

Chrome corundum bricks are made of alumina chromium raw materials, chromium oxide, alumina and other materials, through high temperature sintering. The total content of alumina and chromium oxide is not less than 90%, and the content of chromium oxide is not more than 50%. Chrome corundum brick is a high grade refractory material with excellent performance: high-temperature resistant, good thermal shock stability, good compressive strength and thermal conductivity.



### Technical Data:

Items	Grade			
	GGZ-5	GGZ-12	GGZ-20	GGZ-30
$\omega(\text{Cr}_2\text{O}_3)/\%$	5	12	20	30
$\omega(\text{Cr}_2\text{O}_3+\text{Al}_2\text{O}_3)/\%$	93	93	93	93
$\omega(\text{Fe}_2\text{O}_3)/\%$	0.3	0.3	0.3	0.3
Open Porosity /%	18	18	18	18
Bulk Density/(g/cm <sup>3</sup> )	3.10	3.20	3.40	3.50
CCS/ MPa	100	100	100	100

Fireclay Brick

Description :

Fireclay brick is a type of refractory material made primarily from refractory clay, which is fired at high temperatures. The main component is aluminosilicate. These bricks have excellent fire resistance, thermal stability, and slag resistance. They are generally categorized into: fireclay bricks, dense clay bricks, low-creep clay bricks, and thermal shock-resistant clay bricks.



Technical Data :

Item	Grade				
	PN-42	PN-40	PN-35	PN-30	PN-25
$\omega(\text{Al}_2\text{O}_3) / \% \geq$	42	40	35	30	25
$\omega(\text{Fe}_2\text{O}_3) / \% \leq$	2.0	—	—	—	—
Open Porosity / $\% \leq$	20(22)	24(26)	26(28)	23(25)	21(23)
CCS / MPa $\geq$	45(35)	35(30)	30(25)	30(25)	30(25)
	35(25)	25(20)	20(15)	20(15)	20(15)
R.U.L. (0.2 MPa $T_{0.6}$ ) / $^{\circ}\text{C} \geq$	1400	1350	1320	1300	1250
HPLC / $\%$	1400 $^{\circ}\text{C} \times 2 \text{ h}$	1350 $^{\circ}\text{C} \times 2 \text{ h}$	1300 $^{\circ}\text{C} \times 2 \text{ h}$	1300 $^{\circ}\text{C} \times 2 \text{ h}$	1250 $^{\circ}\text{C} \times 2 \text{ h}$
	—0.4~0.1	—0.4~0.1	—0.4~0.1	—0.4~0.1	—0.4~0.1



## Andalusite Brick

### Description :

Andalusite bricks are made of raw materials such as andalusite and mullite, which are crushed, batched, semi-dry high-pressure molded, dried and sintered at a high temperature of about 1500°C.

The main characteristics of andalusite bricks are high refractoriness and stability at 1800°C. In addition, they have excellent thermal shock stability and creep resistance, high load softening temperature, and chemical corrosion resistance.

### Technical Data :

Items		Grades					
		RH155	RH150	RH145	RH140	RH135	RH130
$\omega(\text{Al}_2\text{O}_3)$ / %	$\mu_0 \geq$	69	65	61	57	53	49
$\omega(\text{Fe}_2\text{O}_3)$ / %	$\mu_0 \leq$	1.0	1.0	1.2	1.2	1.5	1.5
$\omega(\text{TiO}_2)$ / %	$\mu_0 \leq$	0.5	0.5	0.5	0.6	0.6	0.6
Open Porosity / %	$\mu_0 \leq$	20(22)	20(22)	20(22)	20(22)	20(22)	20(22)
Density / (g/cm <sup>3</sup> )		2.55-2.70	2.50-2.65	2.45-2.60	2.40-2.55	2.35-2.50	2.30-2.45
		(2.50-2.65)	(2.45-2.60)	(2.40-2.55)	(2.35-2.50)	(2.30-2.45)	(2.25-2.40)
CCS / MPa	$\mu_0 \geq$	55(50)	55(50)	50(45)	50(45)	40(35)	40(35)
	$X_{\min}$	45	45	40	40	30	30
0.2 MPa R.U.L / °C	$\mu_0 \geq$	1700	1700	1650	1600	1520	1450
HPLC / %		(1500°C× 2h)±0.2	(1500°C× 2h)±0.2	(1500°C× 2h)±0.2	(1450°C× 2h)±0.2	(1450°C× 2h)±0.2	(1450°C× 2h)±0.2
CMOR(0.2MPa, 0~50h) / %	$\mu_0 \leq$	0.8 (1550°C)	0.8 (1550°C)	0.8 (1450°C)	0.8 (1400°C)	0.8 (1350°C)	0.8 (1300°C)

Note: The values in brackets are checkered bricks or handmade bricks

## High Alumina Insulating Brick

### Description:

High alumina insulating brick is a kind of heat-insulating refractory product made primarily from bauxite, with an  $\text{Al}_2\text{O}_3$  content of no less than 48%. They are mainly produced using bauxite clinker, combined with clay as raw materials, and mixed with binders and sawdust. To enhance the product's performance, industrial alumina, corundum, sillimanite, kyanite and silica are added in fine powder form to produce products with a bulk density of over  $0.4 \text{ g/cm}^3$ . The characteristics of these products include light weight, excellent thermal insulation properties (low thermal conductivity), high refractoriness, excellent thermal stability and mechanical strength.



### Technical Data:

Item	Grade					
	LG140-1.2	LG140-1.0	LG140-0.8L	LG135-0.7L	LG135-0.6L	LG125-0.5L
$\omega(\text{Al}_2\text{O}_3)/\% \geq$				48		
$\omega(\text{Fe}_2\text{O}_3)/\% \leq$				2.0		
Bulk Density ( $\text{g/cm}^3$ ) $\leq$	1.2	1.0	0.8	0.7	0.6	0.5
CCS / MPa $\geq$	4.5	3.5	2.5	2.2	1.6	1.2
	min4.0	min3.0	min2.2	min2.0	min1.5	min1.0
HPLC / %		1400°C×12 h —2~1.0		1350°C×12 h —2~1.0		1250°C×12 h —2~1.0
$\lambda$ [W/m·k] (350±25°C) $\leq$	0.55	0.50	0.35	0.30	0.25	0.20

## Poly-light High-Alumina Brick

### Description:

Poly-light high-alumina brick is a new type of lightweight insulation material made from high-alumina bauxite as the main raw material, with a certain amount of combustible substances or foaming agents added, and then processed through high-temperature sintering. Poly-light high-alumina bricks have the advantages of low density, high mechanical strength, excellent fire resistance, strong slag resistance, and thermal shock stability. As a result, they are widely used in high-temperature fields such as furnaces, metallurgy, etc. They are generally used for furnaces lining and insulation layers, as well as areas that are not subject to intense high-temperature molten material erosion and scouring. When in direct contact with flames, the surface contact temperature should not exceed 1350°C.



### Technical Data:

Item	Grade					
	JLG-1.3L	JLG-1.0L	JLG-0.8L	JLG-0.7L	JLG-0.6L	JLG-0.5L
$\omega(\text{Al}_2\text{O}_3)/\% \geq$	72	60	55	50	50	48
$\omega(\text{Fe}_2\text{O}_3)/\% \leq$	1.5					
Bulk Density/(g/cm <sup>3</sup> ) ≤	1.3	1.0	0.8	0.7	0.6	0.5
CCS/MPa ≥	5	3	2.5	2.0	1.5	1.2
	min4.5	min2.5	min2.0	min1.5	min1.2	min1.0
HPLC/%(T/°C×12 h)	1700°C	1600°C	1500°C	1400°C	1350°C	1350°C
	-1.0~0.5	-1.0~0.5	-1.0~0.5	-1.0~0.5	-2.0~1.0	-2.0~1.0
Thermal Conductivity W/m·k ≤ (350±25)°C	0.6	0.50	0.35	0.30	0.25	0.20

## Mullite Insulation Brick

### Description:

Mullite insulation brick is a kind of insulating brick primarily made from mullite as the main raw material, with an alumina content generally ranging from 45% to 65%. The mineral composition, in addition to mullite, includes small amounts of glass phase and quartz when the alumina content is relatively low; whereas, when the alumina content is higher, small amounts of corundum are present. This product features low thermal conductivity, low thermal expansion, low impurity content, high resistance to high temperatures, high compressive strength and excellent thermal shock resistance. Moreover, they can be processed into special shapes and in direct contact with the fire side.



### Technical Data:

Item		Grade						
		MG-23	MG-25	MG-26	MG-27	MG-28	MG-30	MG-32
$\omega(\text{Al}_2\text{O}_3)/\%$	$\geq$	40	50	55	60	65	70	77
$\omega(\text{Fe}_2\text{O}_3)/\%$	$\leq$	1.0	1.0	0.9	0.8	0.7	0.6	0.5
Bulk density/(g/cm <sup>3</sup> )	$\leq$	0.55	0.80	0.85	0.90	0.95	1.05	1.35
CCS / MPa	$\geq$	1.0	1.5	2.0	2.5	2.5	3.0	3.5
	Min	0.9	1.3	1.8	2.2	2.2	2.7	3.2
HPLC (T/°C×12h) /%	T/°C	1230	1350	1400	1450	1510	1620	1730
$\lambda/[W/(m\cdot k)]\leq (\pm 25^\circ\text{C})$	200	0.18	0.26	0.28	0.32	0.35	0.42	0.56
	350	0.20	0.28	0.30	0.34	0.37	0.44	0.60
	600	0.22	0.30	0.33	0.36	0.39	0.46	0.64
R.U.L. (0.2 MPa T <sub>0.6</sub> ) / °C $\geq$		1080	1200	1250	1300	1360	1470	1570

## Light Weight Fireclay Brick

### Description:

Light weight fireclay brick, also known as fireclay insulating brick, is a type of lightweight refractory material made from refractory clay with an alumina content of 30% to 46%. The characteristics of these bricks include low density, low thermal conductivity, high refractoriness and good thermal insulation performance, making them primarily used in the areas that need heat insulation in various kilns.



### Technical Data:

Item	Grade						
	NG140-1.5	NG135-1.3	NG135-1.2	NG130-1.0	NG125-0.8	NG120-0.6	NG115-0.5
Bulk Density/(g/cm <sup>3</sup> )	≤1.5	≤1.3	≤1.2	≤1.0	≤0.8	≤0.6	≤0.5
CCS / MPa	≥6.0	≥5.0	≥4.5	≥3.5	≥2.5	≥1.3	≥1.0
	5.5	4.5	4.0	3.0	2.0	1.0	0.8
HPLC / %	1400 °C× 12 h	1350 °C×12 h		1300 °C× 12 h	1250 °C× 12 h	1200 °C× 12 h	1150 °C× 12 h
	Xmin~Xmax: -2 ~ 1						
λ [W/m·k] (350±25°C)	≤0.65	≤0.55	≤0.50	≤0.40	≤0.35	≤0.25	≤0.23

## Nano Insulation Board

### Description:

We mix nano-scale silica materials with some additives and use dry molding technology to make a micro-porous structure of high-efficiency thermal insulation board. It has a lower thermal conductivity than still air, excellent thermal insulation performance in high temperature environment, and obvious energy saving effect.



### Technical Data:

Items		Grades			
		NIB-400	NIB-550	NIB-950	NIB-1150
Color		Off-white	Grey	Off-white	Off-white
Size(mm)		250*200 / 320*200	250*200 / 200*200	1000*600, etc.	600*200, etc.
Thick(mm)		25~60	25~100	5~50	5~20
Density(kg/m <sup>3</sup> )		400±5%	550±5%	280±5%	320~360
Coating form		Heat shrink wrap	Heat shrink wrap	Heat shrink wrap, Al-foil wrap, Fire cloth wrap	Al-foil wrap
Work Temp(°C)		≤1000	≤1100	≤1000	≤1050
CCS(MPa)/Press10%		≥0.5	≥0.5	≥0.35	≥0.5
HTLSR/%	800°C×4h	≤1.5	≤1.2	≤2.0	-
	1050°C×24h	-	-	-	≤3.5
λ/ [W/(m · K)]	200°C	-	-	0.02	-
	400°C	-	-	0.023	-
	600°C	0.031	0.049	0.027	-
	800°C	0.042	0.055	0.032	0.037
	950°C	-	-	-	0.042
	1000°C	0.052	0.068	-	-
	1050°C	-	-	-	0.045