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.

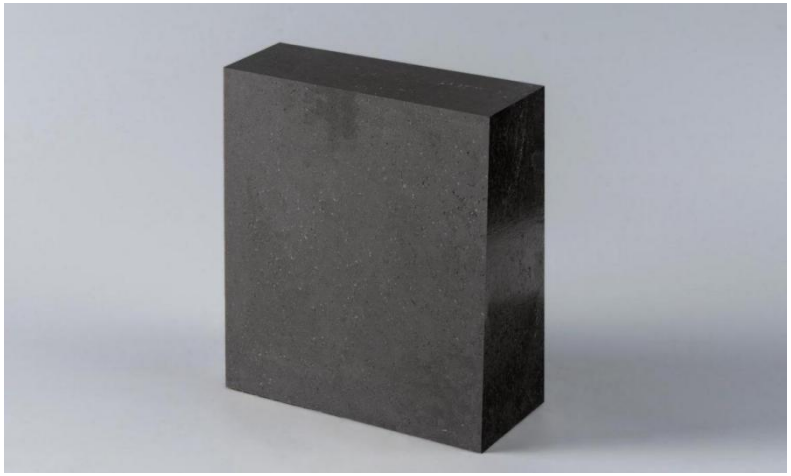
Technical Data:

Item	Grade						
	M—98	M—97A	M—97B	M—95A	M—95B	M—91	M—89
ω(MgO)/%≥	97.5	97.0	96.5	95.0	94.5	91.0	89.0
ω(SiO_2)/%≤	1.00	1.20	1.50	2.00	2.50	—	—
ω(CaO)/%≤	—	——	——	2.00	2.00	3.00	3.00
Apparent Porosity/%≤	16	16	18	16	18	18	20
Bulk Density/(g/cm^3)≥	3.00	3.00		2.95		2.90	2.85
CCS/MPa≥	60	60		60		60	50
	50	50		50		50	45
R.U.L. / 0.2 MPa $T_{0.6}$/℃≥	1700	1700		1650		1560	1500
HPLC/%		1650℃×2h —0.2～0		1650℃×2 h —0.3～0		1600℃×2 h —0.5～0	1600℃×2 h —0.6～0

Magnesia Carbon Brick

Description:

Magnesia-carbon brick is a kind of non-burning carbon composite refractory material made from high-melting-point basic oxide magnesia and high-melting-point graphite, which is resistant to slag penetration,adding various non-oxide additives and combining with carbonaceous binder. As a composite refractory material, magnesia carbon bricks effectively combine the strong slag resistance of magnesia with the high thermal conductivity and low thermal expansion of carbon, thereby compensating for magnesia's poor spalling resistance. Their main features include excellent high-temperature performance, strong slag resistance, good thermal shock resistance, and low high-temperature creep.



Technical Data:

Grade	Item					
	Open Porosity/ % ≤	Bulk density/ ($g \cdot cm^3$) ≥	CCS / MPa	HMOR(1400℃×0.5 h) / MPa ≥	ω(MgO)/ % ≥	ω(C)/ % ≥
MT-5A	5.0	3.10	50.0	—	85.0	5.0
MT-5B	6.0	3.02	50.0	—	84.0	5.0
MT-5C	7.0	2.92	45.0	—	82.0	5.0
MT-5D	8.0	2.90	40.0	—	80.0	5.0
MT-8A	4.5	3.05	45.0	—	82.0	8.0
MT-8B	5.0	3.00	45.0	—	81.0	8.0
MT-8C	6.0	2.90	40.0	—	79.0	8.0
MT-8D	7.0	2.87	35.0	—	77.0	8.0

MT-10A	4.0	3.02	40.0	6.0	1.0	80.0	10.0
MT-10B	4.5	2.97	40.0		—	79.0	10.0
MT-10C	5.0	2.92	35.0		—	77.0	10.0
MT-10D	6.0	2.87	35.0		—	75.0	10.0
MT-12A	4.0	2.97	40.0	6.0	1.0	78.0	12.0
MT-12B	4.0	2.94	35.0		—	77.0	12.0
MT-12C	4.5	2.92	35.0		—	75.0	12.0
MT-12D	5.5	2.85	30.0		—	73.0	12.0
MT-14A	3.5	2.95	38.0	10.0	1.0	76.0	14.0
MT-14B	3.5	2.90	35.0		—	74.0	14.0
MT-14C	4.0	2.87	35.0		—	72.0	14.0
MT-14D	5.0	2.81	30.0		—	68.0	14.0
MT-16A	3.5	2.92	35.0	8.0	1.0	74.0	16.0
MT-16B	3.5	2.87	35.0		—	72.0	16.0
MT-16C	4.0	2.82	30.0		—	70.0	16.0
MT-18A	3.0	2.89	35.0	10.0	1.0	72.0	18.0
MT-18B	3.5	2.84	30.0		—	70.0	18.0
MT-18C	4.0	2.79	30.0		—	69.0	18.0

Magnesia-alumina Carbon Brick

Description:

Magnesia-alumina carbon brick is a kind of non-fired products made primarily from magnesia, with the addition of high-alumina bauxite, corundum and flaky graphite. This product is developed by adjusting the process and technology based on alumina-magnesia-carbon bricks, enhancing the material's corrosion resistance and spalling resistance. The product features high refractoriness, strong corrosion resistance, excellent thermal shock stability and good oxidation resistance.

Technical Data:

Item	Grade			
	MLT75	MLT65	MLT55	MLT45
ω(MgO) /%≥	75	65	55	45
ω(Al_2O_3+ MGO) /%≥	83	80	75	75
ω(C) /%≥	5	5	8	8
Apparent Porosity/%≤	5.5	5.5	5.5	5.5
Bulk Density/(g/cm^3)≥	3.05	3.00	2.95	2.90
CCS /MPa≥	50	50	40	40

Magnesia-Alumina Spinel Brick

Description:

Magnesia-alumina spinel bricks are refractory materials primarily composed of magnesite (MgO) and bauxite (Al_2O_3), which form the spinel phase ($MgAl_2O_4$)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
ω(MgO)/%≥	90	85	80	75
ω(Al_2O_3)/%	3～8	5～12	8～17	8～12
Apparent Porosity/%≤	17	17	16	19
Bulk Density/(g/cm^3)≥	2.90	2.95	2.95	2.85
CCS/MPa≥	45	45	55	40
	40	40	50	35
R.U.L./ 0.2 MPa $T_{0.6}$/℃≥	1700	1700	1700	1650
Thermal Shock Resistance(1100℃~cold)≥	3	8	12	8

Magnesia-Alumina-Chrome Spinel Brick

Description:

Magnesia-alumina-chrome composite spinel bricks are made from magnesia, synthetic spinel and a small amount of ferrochrome ore as the main raw materials, formed under high pressure and fired at medium to high temperatures. It is an upgraded product of pure magnesia bricks and magnesia-alumina bricks. Compared to the same base magnesia-alumina bricks, it shows significant improvements in performance, including higher load softening temperature and better thermal shock resistance. These bricks are primarily used in high-temperature industrial kilns, especially at the kiln roof, areas exposed to intense thermal shock and regions subjected to prolonged high-temperature load.

Technical Data:

Item	Grade	
	MAC—80	MAC—85
ω(MgO)/%≥	80	85
ω(Al_2O_3)/%	6～10	5～8
ω(Cr_2O_3)/%	4~6	3~5
Apparent Porosity/%≤	17	17
Bulk Density/(g/cm^3)≥	3.0	2.95
CCS/MPa≥	45	45
Refractoriness Under Load / 0.2 MPa $T_{0.6}$/℃≥	1700	1700
Thermal Shock Resistance(1000℃~Cold)≥	5	8

Magnesia-Chrome Brick

Description:

Magnesia-chrome bricks are refractory products mainly composed of magnesium oxide (MgO) and chromium oxide (Cr_2O_3), with periclase and spinel as the primary mineral components. These bricks have high refractoriness, high-temperature strength, strong resistance to alkaline slag erosion, excellent thermal stability, and a certain degree of adaptability to acidic slags.

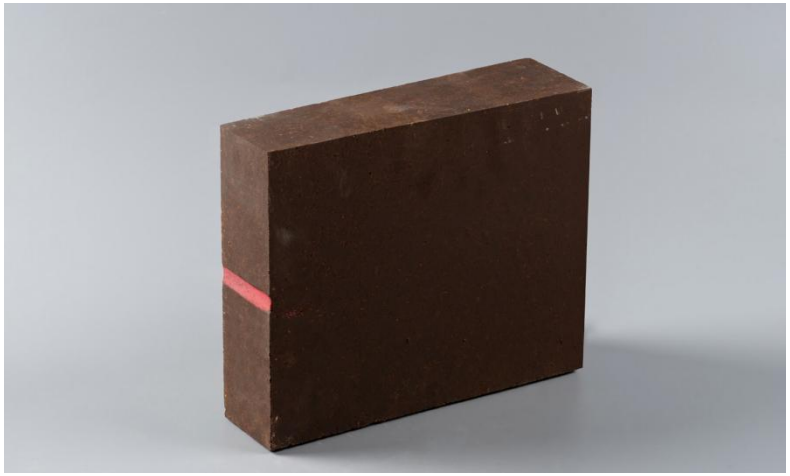
Technical Data:

Item	Grade					
	MGe-16A	MGe-16B	MGe-12A	MGe-12B	MGe-8A	MGe-8B
ω(MgO)/%≥	50	45	60	55	65	60
ω(Cr_2O_3)/%≥	16	16	12	12	8	8
Apparent Porosity/%≤	19	22	19	21	19	21
CCS /MPa≥	35	25	35	30	35	30
	min30	min20	min30	min25	min30	min25
Refractoriness Under Load / 0.2 MPa $T_{0.6}$/℃	1650	1550	1650	1550	1650	1530

Direct-bonded Magnesia-Chrome Brick

Description:

Direct bonded magnesia-chrome brick is a kind of refractory products primarily composed of periclase and magnesia-chromite spinel, bonded directly. This brick is made from high-purity sintered magnesia with less than 2% SiO_2 and chromite as raw materials, produced through high-temperature sintering. The product has low impurity content and is fired at high and ultra-high temperatures, resulting in low porosity, high compressive strength, excellent wear resistance, corrosion resistance, thermal shock resistance, and spalling resistance.



Technical Data:

Item	Grade						
	ZMGe-16A	ZMGe-16B	ZMGe-12A	ZMGe-12B	ZMGe-8A	ZMGe-8B	DMGe-6
ω(MgO)/%≥	60	58	68	65	75	70	75
ω(Cr_2O_3)/%≥	16	16	12	12	8	8	6
ω(SiO_2)/%≤	1.5	2.5	1.5	2.5	1.5	2.5	2.5
Apparent Porosity/%≤	18	18	18	18	18	18	18
CCS/MPa≥	40	40	45	45	45	45	45
	min35	Min35	min35	Min35	min35	min35	min35
R.U.L./ 0.2 MPa $T_{0.6}$/℃	1670	1650	1700	1650	1700	1650	1700

Fused Semi-rebonded Magnesia-Chrome Brick

Description:

Fused semi-rebonded magnesia-chrome bricks are made from fused magnesia-chrome spinel, high-purity magnesia, high-purity chrome concentrate, and a composite high-temperature toughening agent. They are formed under high pressure and sintered at high temperature. These bricks exhibit excellent high-temperature performance and thermal stability, high mechanical strength, superior corrosion resistance, and outstanding anti-spalling performance.

Technical Data:

Item	Grade									
	BMGe-26	BMGe-24	BMGe-22	BMGe-20A	BMGe-20B	BMGe-18	BMGe-16 A	BMGe-16B	BMGe-12A	BMGe-12B
ω(MgO)/%≥	50	50	55	58	55	58	60	55	68	65
ω(Cr_2O_3)/%≥	26	24	22	20	20	18	16	16	12	12
ω(SiO_2)/%≤	2.0	2.0	2.0	2.0	2.5	2.0	2.0	2.5	2.0	2.5
Apparent Porosity/%≤	16 (15)	16 (15)	16 (15)	16 (15)	16 (15)	17 (15)	16 (15)	17 (16)	16 (15)	17 (16)
CCS /MPa≥	40(45)	40(45)	40(45)	40(45)	35(40)	40(45)	40(45)	35(40)	40(45)	35(40)
	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min30 (35)	min35 (40)	min35 (40)	min30 (35)	min35 (40)	min30 (35)
Refractoriness Under Load / 0.2 MPa $T_{0.6}$/℃	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700

Fused Re-bonded Magnesia-Chrome Brick

Description:

Fused re-bonded magnesia-chrome brick is generally made by first melting lightly burned magnesia and chromite in an electric arc furnace to produce fused magnesia-chrome sand. Then this sand is crushed, ground, proportioned, shaped and sintered to manufacture the final product These bricks have a high degree of direct bonding, low impurity content, resulting excellent high-temperature strength, superior high-temperature volume stability, as well as outstanding corrosion and erosion resistance.

Technical Data:

Item	Grade								
	DMGe-26	DMGe-24	DMGe-22	DMGe-20A	DMGe-20B	DMGe-16A	DMGe-16B	DMGe-12A	DMGe-12A
ω(MgO)/%≥	50	50	55	58	58	62	58	68	65
ω(Cr_2O_3)/%≥	26	24	22	20	20	16	16	12	12
ω(SiO_2)/%≤	1.5	1.5	1.5	1.5	2.0	1.5	2.0	1.5	2.0
Apparent Porosity/%≤	16（15）	16（15）	16（15）	16（15）	17（15）	16（15）	17（16）	16（15）	17（16）
CCS/MPa≥	40(45)	40(45)	40(45)	40(45)	40(45)	40(45)	40(45)	40(45)	40(45)
	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min35 (40)	min35 (40)
R.U.L./ 0.2 MPa $T_{0.6}$/℃	1700	1700	1700	1700	1700	1700	1700	1700	1700

High-Alumina Brick

Description:

High-alumina bricks are generally classified into ordinary high-alumina bricks and low-creep high-alumina bricks.

Ordinary high-alumina brick is a kind of neutral refractory materials made from bauxite or other raw materials with a high alumina (Al_2O_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.

Low-creep high-alumina brick is a kind of high-grade refractory materials made primarily from superior-grade bauxite, fused corundum, and fused mullite. These bricks feature low creep at high temperatures, strong corrosion resistance, and excellent thermal shock stability, making them ideal for demanding high-temperature applications.

Technical Data:

High-alumina bricks:

Item	Grade						
	LZ-80	LZ-75	LZ-70	LZ-65	LZ-55	LZ-48	LZ-65G
$\omega(Al_2O_3)$ / %	≥80	≥75	≥70	≥65	≥55	≥48	≥65
Open Porosity / %	≤21(23)	≤24(26)	≤24(26)	≤24(26)	≤22(24)	≤22(24)	≤19
CCS / MPa	≥70(60)	≥60(50)	≥55(45)	≥50(40)	≥45(40)	≥40(35)	≥60
	≥60(50)	≥50(40)	≥45(35)	≥40(30)	≥35(30)	≥30(35)	≥50
R.U.L.	≥1530	≥1520	≥1510	≥1500	≥1450	≥1420	≥1500
HPLC / %	1500℃×2 h			1450℃×2 h			1450℃×2 h

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

Low-creep high-alumina bricks:

Item	Grade							
	DRL-155	DRL-150	DRL-145 K	DRL-145	DRL-140	DRL-135	DRL-130	DRL-127
$\omega(Al_2O_3)$ /%	≥75	≥75	≥65		≥65	≥65	≥60	≥50
$\omega(Fe_2O_3)$ /%	≤0.8	≤1.0	≤1.2		≤1.5	≤1.8	≤2.0	≤2.0
$\omega(TiO_2)$/%	≤0.5	≤0.8	≤1.0		—	—	—	—
Open Porosity/%	≤18	≤19	≤20	≤20(22)	≤20(22)	≤20(22)	≤20(22)	≤21(23)
Bulk density/(g/cm^3)	≥2.65	≥2.60	≥2.50	≥2.50	≥2.45	≥2.40	≥2.35	≥2.30
CCS / MPa	≥70	≥70	≥60	≥65(55)	≥65(55)	≥60(50)	≥60(50)	≥55(45)
	60	60	50	55(45)	55(45)	50(40)	50(40)	45(35)
0.2 MPa creep rate	≤1550℃	≤1500℃	≤1450℃		≤1400℃	≤1350℃	≤1300℃	1270℃
HPLC / %	1500℃		1500℃×2 h		1450℃		1450℃×2 h	
TSR	≥15	≥15	≥30	≥15		—		

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

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_2O_3 / (%)	80	75	70	65	60	55
Bulk Density / (g/cm^3) ≥	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℃ [W/(m·K)]	/	2.0	2.0	2.0	2.0	2.0
R.U.L (0.2 MPa $T_{0.6}$) / ℃ ≥	1550	1500	1480	1450	1400	1350
TSR (1100 ℃~ cold) ≥	10	10	10	10	10	10
Abrasion Resistance RT / cm^3	5	5	5	5	5	5

Alumina-magnesia Carbon Brick

Description:

Alumina-magnesia carbon brick is a kind of refractory product made from premium-grade bauxite or corundum sand, magnesia, and flaky graphite as the main raw materials. Their key feature is that, at high temperatures, they not only exhibit high corrosion resistance and resistance to spalling due to their carbon content, but also show a high residual linear expansion rate because of the formation of spinel during use.

Technical Data:

Item	Grade				
	LMT75	LMT70	LMT65	LMT60	LMT55
$\omega(Al_2O_3)$ /%≥	75	70	65	60	55
$\omega(Al_2O_3+ MgO)$ /%≥	81	77	80	75	72
ω(C) /%≥	5	5	7	7	8
Apparent Porosity/%≤	7.0	7.0	7.0	7.0	7.0
Bulk density/(g/cm^3)≥	3.20	3.15	3.10	3.00	2.90
Cold Crushing Strength/MPa≥	60	60	60	50	50

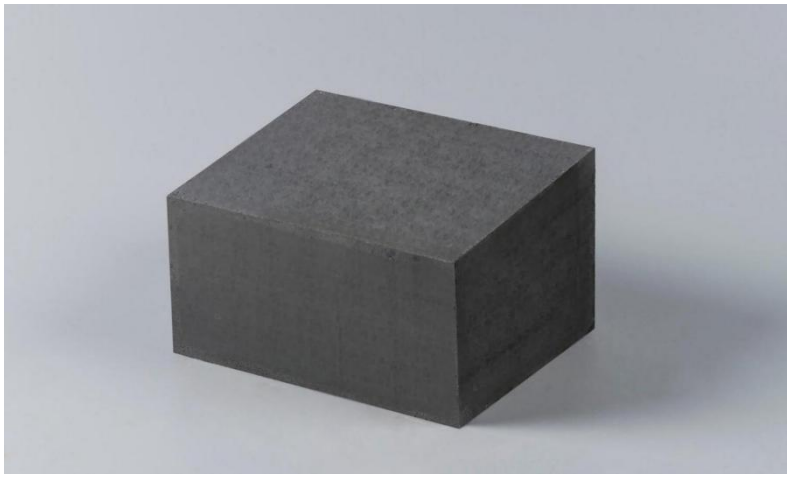
Alumina SiC Carbon Brick

Description:

Alumina silicon carbide carbon bricks, referred to as ASC bricks, are new type of refractory bricks with excellent performance, which are made from recycled alumina, silicon carbide, and carbon brick particles through processes such as crushing, screening, blanking, and drying.

The high hardness of alumina and silicon carbide combined with carbon make alumina silicon carbide carbon bricks have high compressive strength and flexural strength, and withstanding mechanical loads and material erosion at high temperatures.

The low expansion coefficient and good thermal conductivity of silicon carbide and carbon, coupled with the mutual cooperation with alumina, make ASC bricks effectively relieve thermal stress, reduce the generation and expansion of cracks when the temperature changes sharply, and have good thermal shock stability.



Technical Data:

Items		Parameter
$\omega(Al_2O_3)$ / %	μ_0	≥60
ω(SiC + F.C) / %	μ_0	≥15
ω(F.C) / %	μ_0	≥8
Open Porosity / %	μ_0	≤8
CCS/ MPa	μ_0	≥45
Bulk Density/(g/cm^3)	μ_0	≥2.8

Note:

1) F.C represents the free carbon in SiC. 2) μ_0 represents the approved value of qualified quality.

High Chrome Brick

Description:

High chrome bricks refer to refractory bricks with a chromium oxide content of not less than 75% and a total content of chromium oxide, alumina and zirconium oxide of not less than 98%. They are mainly made of industrial chromium oxide and industrial alumina as the main raw materials, sometimes with a small amount of zirconium oxide added, through a high-temperature sintering process.

High chrome bricks have the advantages of high refractoriness, good thermal shock resistance, good slag erosion resistance, strong oxidation resistance, excellent mechanical properties, and good thermal and electrical conductivity.

Technical Data:

Items	Grade			
	GGZ-75	GGZ-85	GGZ-90	GGZ-95
$\omega(Cr_2O_3)/\%$	≥75	≥85	≥90	≥95
$\omega(Cr_2O_3+Al_2O_3+ZrO_2)/\%$	≥98	≥98	≥98	≥98
$\omega(SiO_2)/\%$	≤0.2	≤0.2	≤0.2	≤0.2
$\omega(Fe_2O_3)/\%$	≤0.3	≤0.3	≤0.3	≤0.3
$\omega(K_2O+Na_2O)/\%$	≤0.2	≤0.2	≤0.2	≤0.2
Open Porosity /%	≤18	≤18	≤16	≤16
Bulk Density/(g/cm^3)	≥3.90	≥4.20	≥4.22	≥4.25
CCS/ MPa	≥120	≥120	≥120	≥120

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
ω(Cr_2O_3)/%	5	12	20	30
ω(Cr_2O_3+Al_2O_3)/%	93	93	93	93
ω(Fe_2O_3)/%	0.3	0.3	0.3	0.3
Open Porosity /%	18	18	18	18
Bulk Density/(g/cm^3)	3.10	3.20	3.40	3.50
CCS/ MPa	100	100	100	100

Corundum Brick

Description:

Corundum brick is an excellent refractory brick with corundum as the main crystal phase and Al_2O_3 content of more than 95%. It is made of industrial alumina or high-alumina bauxite as the main raw material and is formed by high-temperature sintering. They have good thermal shock stability, high mechanical strength, good wear resistance, and excellent corrosion resistance.

Technical Data:

Items		Grades			
		GYZ-99A	GYZ-99B	GYZ-98	GYZ-95
$\omega(Al_2O_3)$ / %	μ_0	≥99.0	≥99.0	≥98.0	≥95.0
$\omega(SiO_2)$ / %	μ_0	≤0.15	≤0.2	≤0.5	——
$\omega(Fe_2O_3)$ / %	μ_0	≤0.10	≤0.15	≤0.20	≤0.30
Open Porosity / %	μ_0	≤19	≤19	≤19	≤20
Bulk Density / (g/cm^3)	μ_0	≥3.20	≥3.15	≥3.15	≥3.10
CCS / MPa	μ_0	≥80	≥80	≥80	≥100
HPLC (1600℃×3h) / %	X_{min}	-0.2~+0.2	-0.2~+0.2	-0.2~+0.2	-0.3~+0.3
R.U.L (0.2 MPa ,0.6%) / ℃	X_{min}	1700	1700	1700	1700

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℃, 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
ω(Al_2O_3) / %	≥88.0	≥85.0	≥80.0	≥75.0
ω(Fe_2O_3) / %	≤0.8	≤1.0	≤1.0	≤1.2
Open Porosity / %	≤15	≤16	≤18	≤18
Density / (g/cm^3)	≥3.00	≥2.85	≥2.75	≥2.60
CCS / MPa	≥120	≥100	≥100	≥100
	100	80	80	60
R.U.L (0.2 MPa , $T_{0.6}$) / ℃	≥1700	≥1680	≥1650	
HPLC (1600℃×3h) / %	-0.1~+0.1		-0.2~+0.2	
TSR(1100℃, Cold Water) / cycles	≥10	≥10	——	

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℃.

The main characteristics of andalusite bricks are high refractoriness and stability at 1800℃. 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
$\omega(Al_2O_3)$ / %	$\mu_0\geq$	69	65	61	57	53	49
$\omega(Fe_2O_3)$ / %	$\mu_0\leq$	1.0	1.0	1.2	1.2	1.5	1.5
$\omega(TiO_2)$ / %	$\mu_0\leq$	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^3)		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 / ℃	$\mu_0\geq$	1700	1700	1650	1600	1520	1450
HPLC / %		(1500℃×2h)±0.2	(1500℃×2h)±0.2	(1500℃×2h)±0.2	(1450℃×2h)±0.2	(1450℃×2h)±0.2	(1450℃×2h)±0.2
CMOR(0.2MPa, 0~50h) / %	$\mu_0\leq$	0.8 (1550℃)	0.8 (1550℃)	0.8 (1450℃)	0.8 (1400℃)	0.8 (1350℃)	0.8 (1300℃)

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

Silica Brick

Description:

Silica brick is an acidic refractory brick, usually containing more than 93% silica, and also contains a small amount of impurities such as alumina, calcium oxide, and iron oxide.
Silica bricks are divided into four types according to their use: general silica bricks, silica bricks for glass kilns, silica bricks for coke ovens, and silica bricks for hot blast furnaces.

Technical Data:

Normal Silica Brick:

Items	Properties
	GZ-94
$\omega(SiO_2)$ / %	≥94
$\omega(Fe_2O_3)$ / %	≤1.4
Open Porosity / %	≤24
Density / (g/cm^3)	≤2.35
CCS / MPa	≥30
0.2 MPa R.U.L / ℃	≥1650

Silica Bricks for Coking Furnace:

Items		Properties		
		JG-94		
		Bottom	Lining	Other
$\omega(SiO_2)$ / %	μ_0	≥94.5		≥94.0

$\omega(Al_2O_3)$ / %	μ_0	≤1.2		≤1.5
$\omega(Fe_2O_3)$ / %	μ_0	≤1.2		≤1.5
$\omega(CaO)$ / %	μ_0	≤3.0		≤3.0
$\omega(Na_2O+K_2O)$ / %	μ_0	≤0.35		≤0.35
Open Porosity / %	μ_0	≤22		≤24
CCS / MPa	μ_0	≥40	≥35	≥28
	X_{min}	30	25	20
0.2 MPa R.U.L / ℃	μ_0		≥ 1 650	
Density / (g/cm^3)	μ_0	≤2.33		≤2.34
Residual Quartz / %	μ_0		≤1.5	
HPLC (1450℃×2h) / %	$X_{min} \sim X_{max}$		0 ~ 0.2	
CTE / %	μ_0	≤1.28		≤1.30

Silica Bricks for Hot Blast Furnace:

Items		Properties		
		RG-95		
		Vault, furnace wall bricks		Checkered bricks
$\omega(SiO_2)$ / %	μ_0		≥95	
$\omega(Al_2O_3)$ / %	μ_0		≤1.0	
$\omega(Fe_2O_3)$ / %	μ_0		≤1.2	
Open Porosity / %	μ_0	≤22		≤24
Density / (g/cm^3)	μ_0	≤2.33		≤2.34
CCS / MPa	μ_0	≥40		≥30
	X_{min}	25		25
0.2 MPa R.U.L / ℃	μ_0		≥1650	
Residual Quartz / %	μ_0		≤1.5	
0.2 MPa Creep Rate (1550℃) 0h ~ 50h / %	μ_0		≤0.8	
CTE(1000℃) / %	μ_0		≤1.26	

Sillimanite Brick

Description:

Sillimanite bricks are made of high-purity sillimanite raw materials that are crushed, screened, pressed, and sintered at 1500℃~1700℃. Sillimanite bricks are a type of refractory brick with excellent performance, which can withstand high temperatures of 1800℃ and have the advantages of high refractoriness under load, good creep resistance, and good thermal shock resistance.

Technical Data:

Items	Type	
	Extrusion	Cast
Al_2O_3 / %	≥60	
SiO_2 / %	≤35	
Fe_2O_3 / %	≤1.0	
Bulk Density / (g/cm^3)	≥2.40	
Open Porosity / %	≤20.0	
CCS / MPa	≥75.0	≥60.0
R.U.L (0.2 MPa , $T_{0.6}$) / ℃	≥1 550	≥1 450
TSR (1100℃, cold water) / cycles	≥10	
HPLC (1400℃×2h) / %	±0.2	

Fused Quartz Brick

Description:

Fused quartz brick is a kind of high-performance refractory material, which made of high-purity quartz sand as the main raw material, with silica content usually greater than 97%. Fused quartz brick has low thermal expansion coefficient, good thermal shock resistance and chemical stability.

Technical Data:

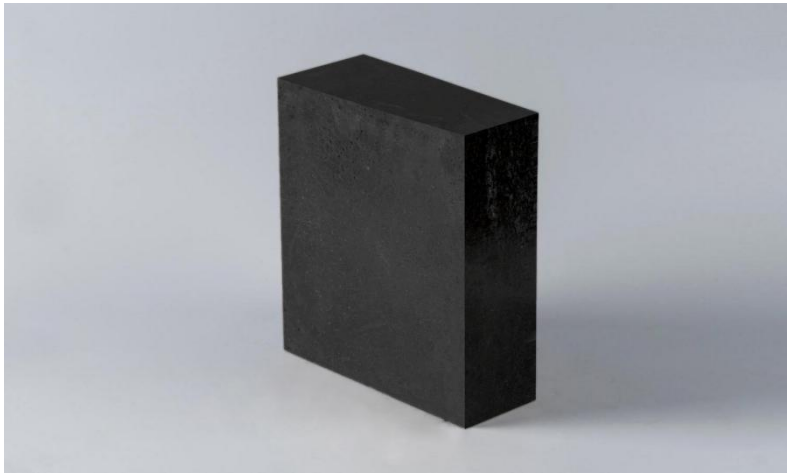
Items	Grades		
	FQ - 97	FQ - 98	FQ - 99
ω(SiO_2) / %	≥97	≥98	≥98.5
ω(Al_2O_3) / %	≤0.5	≤0.3	≤0.2
ω(Fe_2O_3) / %	≤0.3	≤0.2	≤0.1
Density / (g/cm^3)	≥1.75	≥1.80	≥1.85
Open Porosity / %	≤22.0	≤20.0	≤18.0
CCS / MPa	≥25	≥30	≥35
0.2 MPa R.U.L / ℃	≥1500	≥1600	≥1650
CTE (1000℃) / %		≤0.20	
TSR(1100℃,Cold Water) / cycles	≥30	≥30	≥30

Silicon Carbide-Carbon Brick

Description:

Silicon carbide carbon brick is a kind of refractory brick material made of calcined anthracite, silicon carbide and graphite as the main raw materials, which calcined at high temperature. They are mainly used for building linings and tapholes of submerged arc furnaces.

Silicon carbide carbon brick is an ideal lining material for submerged arc furnaces. It has high thermal conductivity, can dissipate heat quickly, has good high temperature strength that makes it not easy to deform, and has good oxidation resistance and thermal shock resistance that allows it to withstand complex working environments.



Technical Data:

Items		Properties
Bulk Density / (g/cm^3)		≥1.75
Open Porosity / %		≤18
CCS / MPa		≥32
ω(SiC) / %		≥30
Alkali resistance		U or LC
Oxidation / %		≤20
λ / (W/(m ▪ k))	RT	≥6
	600℃	≥8

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
$\omega(Al_2O_3)$ / % ≥	42	40	35	30	25
$\omega(Fe_2O_3)$ / % ≤	2.0	—	—	—	—
Open Porosity / % ≤	20(22)	24(26)	26(28)	23(25)	21(23)
CCS / MPa ≥	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 $T_{0.6}$)/ ℃ ≥	1400	1350	1320	1300	1250
HPLC / %	1400℃×2 h —0.4～0.1	1350℃×2 h —0.4～0.1	1300℃×2 h —0.4～0.1	1300℃×2 h —0.4～0.1	1250℃×2 h —0.4～0.1

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^3)	≤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 ℃× 12 h	1350 ℃×12 h		1300 ℃× 12 h	1250 ℃× 12 h	1200 ℃× 12 h	1150 ℃× 12 h
	Xmin~Xmax: -2 ~ 1						
λ [W/m·k] (350±25℃)	≤0.65	≤0.55	≤0.50	≤0.40	≤0.35	≤0.25	≤0.23

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
$\omega(Al_2O_3)/\%$	≥	40	50	55	60	65	70	77
$\omega(Fe_2O_3)/\%$	≤	1.0	1.0	0.9	0.8	0.7	0.6	0.5
Bulk density/(g/cm^3)	≤	0.55	0.80	0.85	0.90	0.95	1.05	1.35
CCS / MPa	≥	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/℃×12h）/%	T/℃	1230	1350	1400	1450	1510	1620	1730
λ/[W/(m·k)]≤（±25℃）	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 $T_{0.6}$) / ℃ ≥		1080	1200	1250	1300	1360	1470	1570

High Alumina Insulating Brick

Description:

High alumina insulating brick is a kind of heat-insulating refractory product made primarily from bauxite, with an Al_2O_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 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
$\omega(Al_2O_3)/\%\geq$	48					
$\omega(Fe_2O_3)/\%\leq$	2.0					
Bulk Density (g/cm^3)≤	1.2	1.0	0.8	0.7	0.6	0.5
CCS / MPa ≥	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℃×12 h —2～1.0			1350℃×12 h —2～1.0		1250℃×12 h —2～1.0
λ [W/m·k] (350±25℃) ≤	0.55	0.50	0.35	0.30	0.25	0.20

Alumina Bubble Brick

Description:

Alumina bubble brick is made primarily from alumina hollow balls and alumina powder, combined with other binders and fired at a high temperature. It is a type of ultra-high temperature energy-saving thermal insulation material. The characteristics of these bricks include excellent thermal insulation properties (low thermal conductivity and high thermal resistance), high fire resistance, chemical stability, good thermal stability, and a certain degree of mechanical strength.

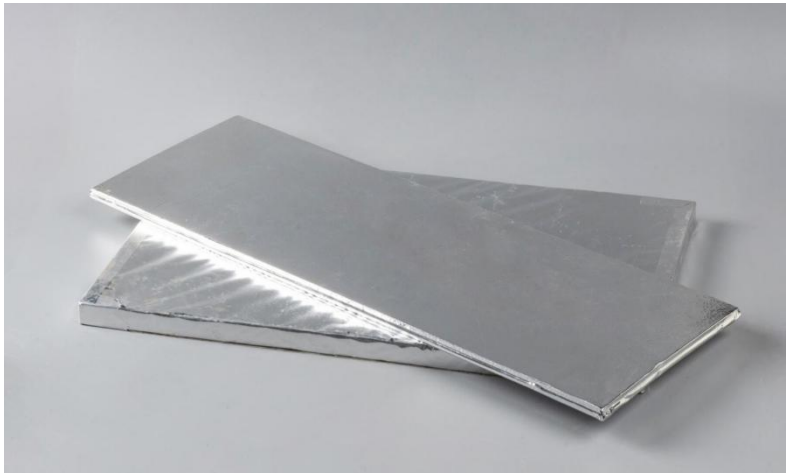
Technical Data:

Item	LQZ-99	LQZ-99	LQZ-99	LQZ-95	LQZ-95	LQZ-95	LQZ-90	LQZ-90	LQZ-90
$\omega(Al_2O_3)$ / % ≥		99			95			90	
$\omega(SiO_2)$ / % ≤		0.3			-			-	
$\omega(Fe_2O_3)$ / % ≤		0.2			0.2			0.2	
Bulk density / (g/cm^3)	1.3~1.5	1.5~1.7	1.7~1.9	1.3~1.5	1.5~1.7	1.7~1.9	1.3~1.5	1.5~1.7	1.7~1.9
CCS / MPa ≥	6	10	12	8	12	16	10	14	18
λ [W/m·k] (350±25℃) ≤	0.9	1.1	1.2	0.9	1.1	1.2	0.9	1.1	1.2
HPLC (1600℃×3h) / %		-0.3~+0.3			-0.3~+0.3			-0.3~+0.3	

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^3)		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(℃)		≤1000	≤1100	≤1000	≤1050
CCS(MPa)/Press10%		≥0.5	≥0.5	≥0.35	≥0.5
HTLSR/%	800℃×4h	≤1.5	≤1.2	≤2.0	-
	1050℃×24h	-	-	-	≤3.5
λ/ [W/(m ▪ K)]	200℃	-	-	0.02	-
	400℃	-	-	0.023	-
	600℃	0.031	0.049	0.027	-
	800℃	0.042	0.055	0.032	0.037
	950℃	-	-	-	0.042
	1000℃	0.052	0.068	-	-
	1050℃	-	-	-	0.045