



Introduction to Refractory Products of GuangDa Industry

Henan GuangDa Industrial Furnace Engineering Technology

Co., Ltd.

Zhengzhou, Henan



Company Profile

Henan GuangDa Industrial Furnace Engineering Technology Co., Ltd., with the registered capital of RMB twenty hundred million Yuan, is specialized in the design, construction, installation, commissioning as well as R&D, promotion and application of new technologies of industrial furnace, a distinguished and competitive technology-based energy management service company in the field of furnace technology.

The Company has already had a strong technical force, but also pays attention to attract professionals of metallurgy and non-ferrous industries, providing multiple services such as ironmaking, steelmaking, thermal engineering process, machine manufacturing, electrification, automation and fluid, and building an experienced and elite team during its technical innovation, engineering design and construction, with more than 20 senior research designers, more than 30 engineers and more than 50 technicians.

The Company insists in technical innovation and cooperates with universities and research institutes by the combination of production and study to ensure its strong innovation ability. Now it has had tens of domestic leading technological achievements with proprietary intellectual property rights, including high blast temperature technique, novel heat retainer technique, GD burner technique, air-gas dual regenerative technology, new GD grate technology, step-type GD lime shaft-kiln technology, GD shaft kiln technology, GD homogeneous feeding equipment, GD energy-saving discharging technique and GD blast cap technology.

The Company has a 20,000 m² refractory production base. The base is fully equipped and highly automated, with advanced production technique, powerful technical strength and perfect quality assurance system. So far, the Company has passed the certification to ISO9001:2008 International Quality Management System and ISO14001:2004 Environmental Management System, and been appraised as the “Provincial Qualified Enterprise Quality Inspection Institution” and the “Provincial Enterprise Technology Center”. While improving the technical content of existing



products, the Company continuously researches and develops good quality, energy-saving and environmentally-friendly high-end refractory materials with a long service life, puts the research findings into industrial application, and provides technical support for domestic and foreign high cost-performance-ratio products, e.g. blast furnace, hot stove, lime kiln, submerged arc furnace.

In addition, the Company also attaches great importance to service platform construction, and our business network has been nationwide and extended to Iran, Turkey, Viet Nam, Malaysia, etc.

With strategies of “technical innovation and win-win cooperation”, GuangDa Industrial Furnace Company will follow closely to the service philosophy of “customers first”, make best efforts to perform each project and tailor the highest quality technical services for each customer by virtue of its good financing capacity, solid technical force and optimum technical scheme.



Production equipment of refractory base



全自动配料系统



全自动数控螺旋压力机



118米全自动高温隧道窑



165米天然气烧成全自动高温隧道窑



Laboratory equipment of refractory base





I. Clay bricks



Item	Clay brick N-1	Clay brick RN-42	Clay brick GN-42	Blast furnace dense clay brick ZGN-42	Phosphoric acid immersed clay brick QGN--42
Al ₂ O ₃ %	≥42	≥42	≥42	≥42	≥42
Refractoriness °C	≥1750	≥1750	≥1750	≥1750	≥1750
Apparent porosity %	≤24	≤24	≤23	≤20	≤18
Volume density g/cm ³	≥2.2	≥2.15	≥2.25	≥2.3	≥2.15
Cold crushing strength MPa	≥30	≥30	≥49	≥58	≥40
RUL (Refractoriness Under Load)	≥1400	≥1400	≥1430	≥1450	≥1400



II. High-alumina bricks



Item	Third Class high-alumina brick LZ-55	Second Class high-alumina brick LZ-65	First Class high-alumina brick LZ-75	Special class high-alumina brick	Low creep high-alumina brick DRL-75
Al ₂ O ₃ %	≥55	≥65	≥75	≥80	≥75
Fe ₂ O ₃ %	≤2.0	≤2.0	≤2.0	≤1.8	≤1.8
Refractoriness °C	≥1790	≥1790	≥1790	≥1790	≥1790
Apparent porosity %	≤24	≤23	≤21	≤20	≤19
Density g/cm ³	≥2.25	≥2.35	≥2.6	≥2.7	≥2.6
Cold crushing strength MPa	≥45	≥50	≥55	≥70	≥60
RUL (0.2MPa) °C	≥1470	≥1480	≥1490	≥1500	≥1500
Reheating linear change rate (1,450°C x 2h)	0.1~-0.4	0.1~-0.4	0.1~-0.2	0.1~-0.2	0.1~-0.2

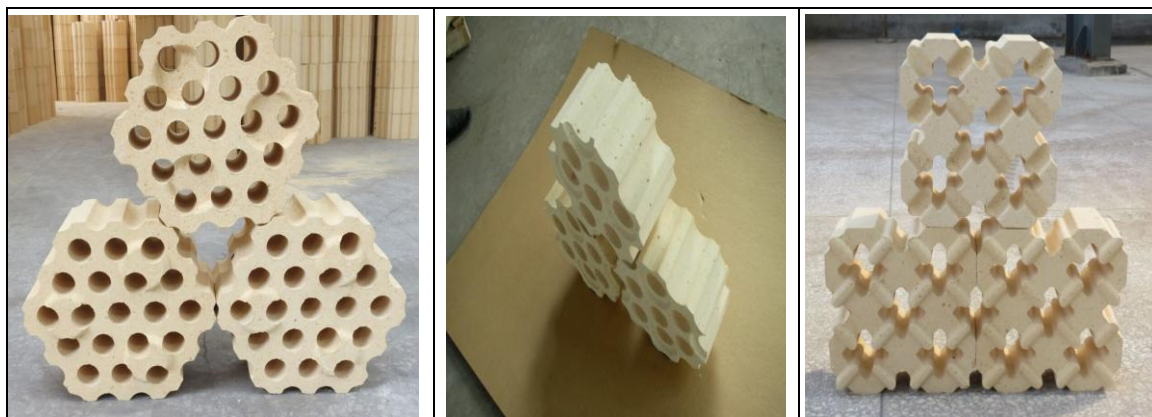
II. Composite bricks



Item	Cordierite-mullite burner composite brick	Dome composite brick	Pipe composite brick
Al ₂ O ₃ %	≥65	≥65	≥65
Fe ₂ O ₃ %	≤1.8	≤1.8	≤1.9
Refractoriness °C	≥1790	≥1790	≥1790
Apparent porosity %	≤20	≤20	≤19
Density g/cm ³	≥2.6	≥2.5	≥2.6
Cold crushing strength MPa	≥60	≥55	≥60
RUL (0.2MPa) °C	≥1600	≥1500	≥1450
Reheating linear change rate (1,450°C x 2h)	0.1~-0.2	0.1~-0.2	0.1~-0.2



IV. Checker bricks



Item	Clay checker brick	High-alumina checker brick	Low creep checker brick
Al ₂ O ₃ %	≥42	≥65	≥75
Fe ₂ O ₃ %	≤2.2	≤2.0	≤1.9
Refractoriness °C	≥1790	≥1790	≥1790
Apparent porosity %	≤24	≤22	≤20
Density g/cm ³	≥2.25	≥2.35	≥2.45
Cold crushing strength MPa	≥40	≥45	≥55
RUL (0.2MPa) °C	≥1400	≥1490	≥1500
Reheating linear change rate	(1350°C x2h) 0.2~-0.2	(1450°C x2h) 0.2~-0.2	(1450°C x3h) 0.1~-0.1



V. Refractory balls

Item	High strength high-alumina ball φ40--φ80mm	Low creep high-alumina ball φ40--φ80mm	Corundum-mullite refractory ball φ60--φ80mm	Al-Zr-Cr composite ball φ60--φ80mm
Al ₂ O ₃ %	≥65	≥75	≥75	≥75
Fe ₂ O ₃ %	≤2.0	≤1.8	≤1.5	≤1.5
Refractoriness °C	≥1790	≥1790	≥1790	≥1790
Apparent porosity %	≤24	≤22	≤20	≤18
Volume density g/cm ³	≥2.25	≥2.4	≥2.6	≥2.7
Cold crushing strength MPa	≥15	≥18	≥30	≥30
RUL (0.2MPa) °C	≥1490	≥1520	≥1550	≥1600



VI. Light bricks



Item	Light clay brick NG-1.0	Light high-alumina brick LG-1.0	Mullite light brick
Volume density g/cm ³	0.6--1.3	0.6--1.3	0.8--1.3
Crushing strength MPa	≥2.5--3.0	≥3.0--4.0	≥4.0--8.0
Reheating linear change rate (1,450°C x2h)	±2	±1.5	±1.5
Heat conductivity coefficient (W/mk)	0.35--0.5	0.35--0.6	0.7



Table of Foreign Projects of GuangDa Industrial Furnace

No.	Project Name	Cooperation Way
1	Sinosteel Engineering & Technology Co., Ltd. (India JSW Steel Ltd.)	Supplier of refractory materials of hot stove
2	Sinosteel Engineering & Technology Co., Ltd. (Columbia Steel Plant)	Supplier of refractory materials of hot stove
3	Kazakhstan Steel Plant	Supplier of refractory materials of blast furnace and hot stove
4	Jiangsu Mingzhu International Trading Limited (Steel Plant in Sulawesi, Indonesia)	Main contractor of 2 blast furnaces
5	Tianjin Zhaoling International Trading Limited (Viet Nam Steel Corporation)	Supplier of refractory materials of hot stove
6	Shijiazhuang Xinhua Energy Environmental Technology Co., Ltd. (Abu Dhabi Lime Company)	Supplier of refractory materials of lime kiln
7	Hebei Daoang Steel Company Limited (Iran Project)	Supplier of refractory materials of blast furnace and hot stove

Table of Domestic Projects of GuangDa



Industrial Furnace

No.	Project Name	Cooperation Way
1	WISDRI Engineering & Research Incorporation Limited (1280m ³ blast furnace engineering of Hanzhong Steel Limited Corporation of Shaanxi Steel Group)	Supplier of materials
2	Capital Engineering & Research Incorporation Ltd. (1250m ³ blast furnace engineering of Ningxia Shenxin Special Steel)	Supplier of materials
3	2560m ³ blast furnace engineering of Yunnan Redvalley Steel Company	Supplier of materials
4	1280m ³ /600m ³ furnace engineering of Wuhu Xinxing Ductile Iron Pipes Co., Ltd.	Supplier of materials
5	1280m ³ blast furnace engineering of Jiu Steel Group Hongxing Iron & Steel Co., Ltd.	Supplier of materials
6	2000m ³ /1500m ³ /1250m ³ blast furnace engineering of Guangxi Liuzhou Iron and Steel (Group) Company	Supplier of materials
7	2×1080m ³ blast furnace engineering of Hebei Xinjin Iron and Steel Co., Ltd.	Supplier of materials
8	2×1080m ³ blast furnace engineering of Hebei Puyang Iron and Steel Group	Supplier of materials
9	2200m ³ /2800m ³ 1×4700m ³ blast furnace engineering of Angang Group	Supplier of materials
10	1080m ³ /450m ³ blast furnace engineering of Rizhao Steel Holding Group Co., Ltd.	Supplier of materials
11	600m ³ blast furnace engineering of Yunnan Qujing Huafu Casting Furnace Charge Co., Ltd.	Supplier of materials
12	1×588 ³ blast furnace engineering of Shuiye Iron Works, Angang Group	Supplier of materials
13	3×450m ³ blast furnace engineering of Xinyang Iron and Steel Group Co.	Supplier of materials
14	1×630m ³ blast furnace engineering of Guangxi Taidu Iron and Steel Company	Supplier of materials
15	1×630m ³ blast furnace engineering of Hebei Xinghua Steel Co., Ltd.	Supplier of materials
16	1×1080 m ³ blast furnace engineering of Zhuhai Yueyufeng Iron and Steel Co., Ltd.	Supplier of materials
17	450m ³ blast furnace engineering of Hengshui Daoang Steel Company Limited	Main contractor of design materials



18	588m ³ /1260m ³ blast furnace engineering of Hebei Jingye Group	Supplier of materials
19	1×450m ³ blast furnace overhaul of Shanxi Dasheng Metal Materials Co., Ltd.	Main contractor
20	2×50m ³ /2×70m ³ blast furnace engineering of Jiangsu Mingzhu International Trading Limited	Main contractor
21	2×450m ³ blast furnace engineering of Benxi Iron & Steel (Group) Co., Ltd.	Supplier of materials
22	2×450m ³ blast furnace engineering of Xuzhou Dongnan Iron and Steel Industry Co., Ltd.	Supplier of materials
23	2×450m ³ blast furnace engineering of Shandong Shiheng Special Steel Group Co., Ltd.	Supplier of materials
24	2×600m ³ blast furnace engineering of Guangxi Guigang Iron & Steel Group Co., Ltd.	Supplier of materials
25	2×450m ³ blast furnace engineering of Jiu Steel Group Yicheng Iron & Steel Co., Ltd.	Supplier of materials
26	3×450m ³ blast furnace engineering of Hebei Wu'an Guangyao Iron and Steel Co., Ltd.	Supplier of materials
27	2×450m ³ blast furnace engineering of Pangang Group Xichang New Steel Enterprise Co., Ltd.	Supplier of materials
28	2×450m ³ blast furnace engineering of Hebei Wu'an Guangyao Iron and Steel Co., Ltd.	Supplier of materials
29	2×450m ³ blast furnace engineering of Siping Xiandai Iron & Steel Co., Ltd.	Supplier of materials
30	2×450m ³ blast furnace engineering of Tangshan Donghai Iron and Steel (Group) Co., Ltd.	Supplier of materials
31	280m ³ blast furnace engineering of Panzhihua Xuding Machine Building Company Limited	Main contractor of materials
32	280m ³ blast furnace engineering of Panzhihua Deming Chemical Co., Ltd.	Main contractor of materials
33	280m ³ blast furnace engineering of Xinjiang Qinggang Iron & Steel Co., Ltd.	Main contractor of materials
34	230m ³ blast furnace engineering of Linyi Wangda Technology Ltd.	Main contractor of materials
35	3×450m ³ blast furnace engineering of Yanshan Iron & Steel Co., Ltd.	Supplier of materials