



SINOMETAL MACHINERY CORP.

Magnesia-Carbon brick introduction

**Sinometal Machinery Corp.
Refractory Center**

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1. Plant introduction

SINOMETAL

Sinometal refractory engineering Co., Ltd. is a modern comprehensive enterprise consisting of scientific research, manufacture and trade. Industrial products of the company are mainly magnesia refractories.

Products of the company: The company possesses domestic advanced production line of refractories used in metallurgy industry; more than 160 sets of extensive manufacturing facilities; and more than 30 sets of checkout equipment. The company's annual output of magnesia carbon brick, alumina magnesia carbon brick and aluminium carbide brick and so on is 70,000 tons

Quality advantages: All products of the company are in accordance with national standard as well as the enterprise's standard, and has got ISO9001 Quality Management System Certification and ISO14001 Environment Management System Certification.

Scientific and technical advantages: The company invested a large sum of money to built the building of engineering technology center which covers an area of 5,000 square meters in 2012. The company's capability of scientific research and development is abundant.



2. MgO-C brick brief introduction

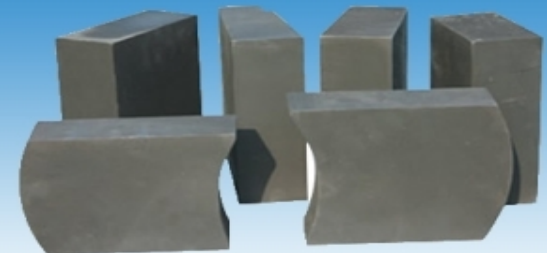
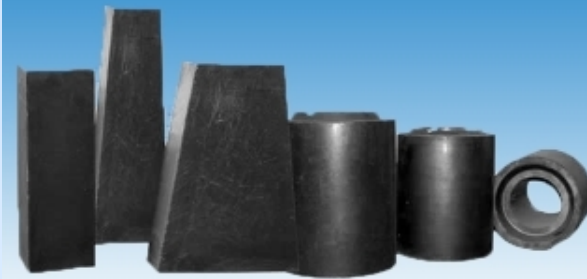
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Magnesite Carbon brick is a kind of basic refractory which is made from magnesite, graphite as raw material, resin as binder, with high pressure moulding and low temperature treatment.

As one kind of compound refractories, it make magnesite good slag erosion resistance and graphite high thermal conductivity and low dilatibility mixed together. Thus Mg-C brick has features of high refractoriness, good thermal shock resistance, erosion resistance, and has good performance in I&S industry, including BOF, EAF, LF.

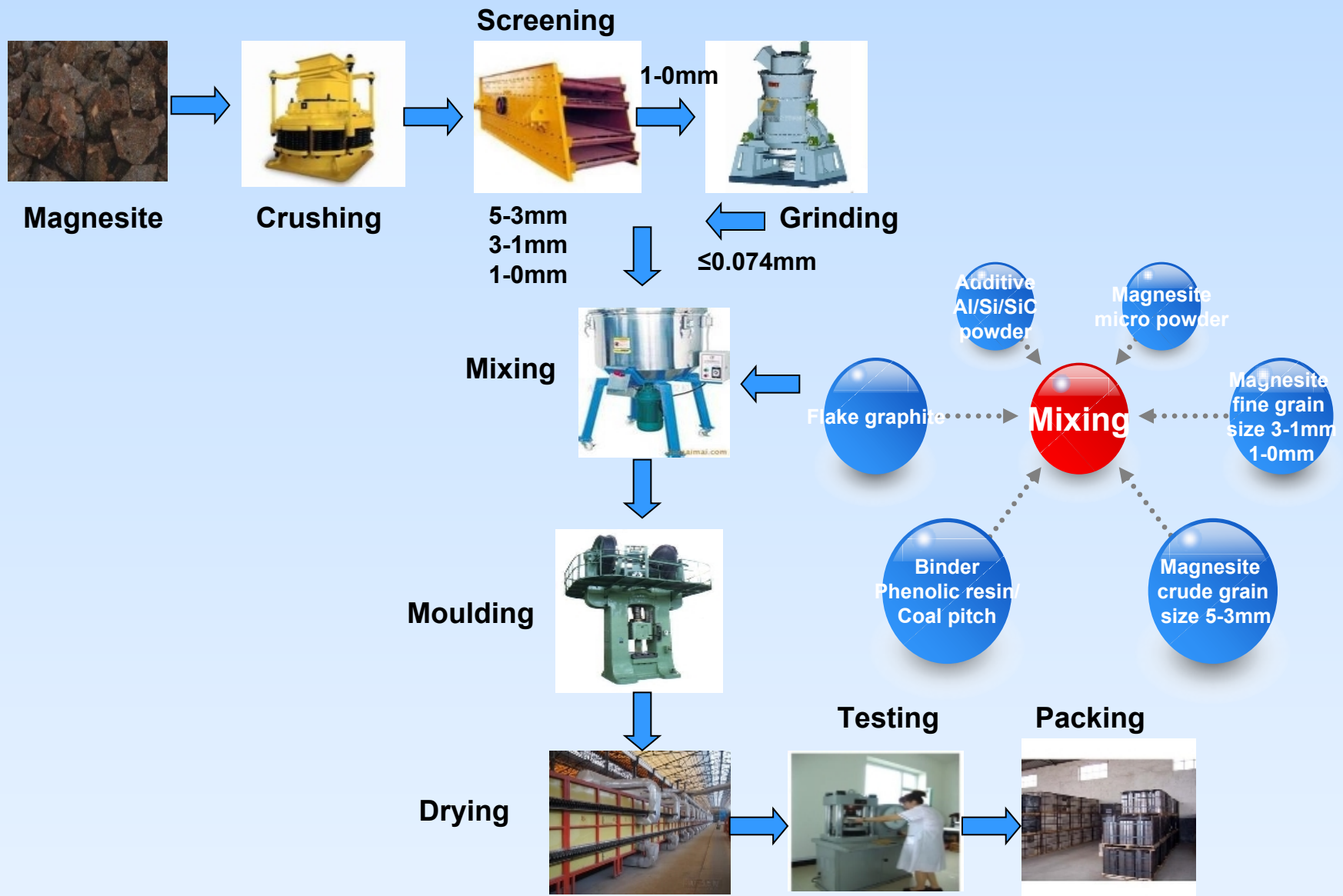
CF MgO-C brick series have the advantages of good performance, long life and low cost. And long supply experience can make sure that we can give our customer total solutions

Alumina Magnesia Carbon brick has same production process, the main raw materials are fused alumina or bauxite, so it has better strength and refractoriness under load, but the slag resistance is not as good as magnesia Carbon bricks.



3. Specific process introduction

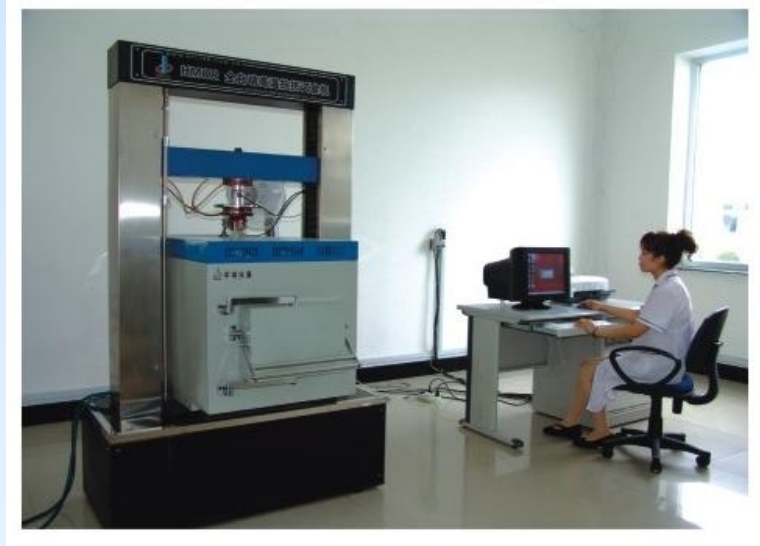
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4. Production equipment and testing equipment **SINOMETAL**

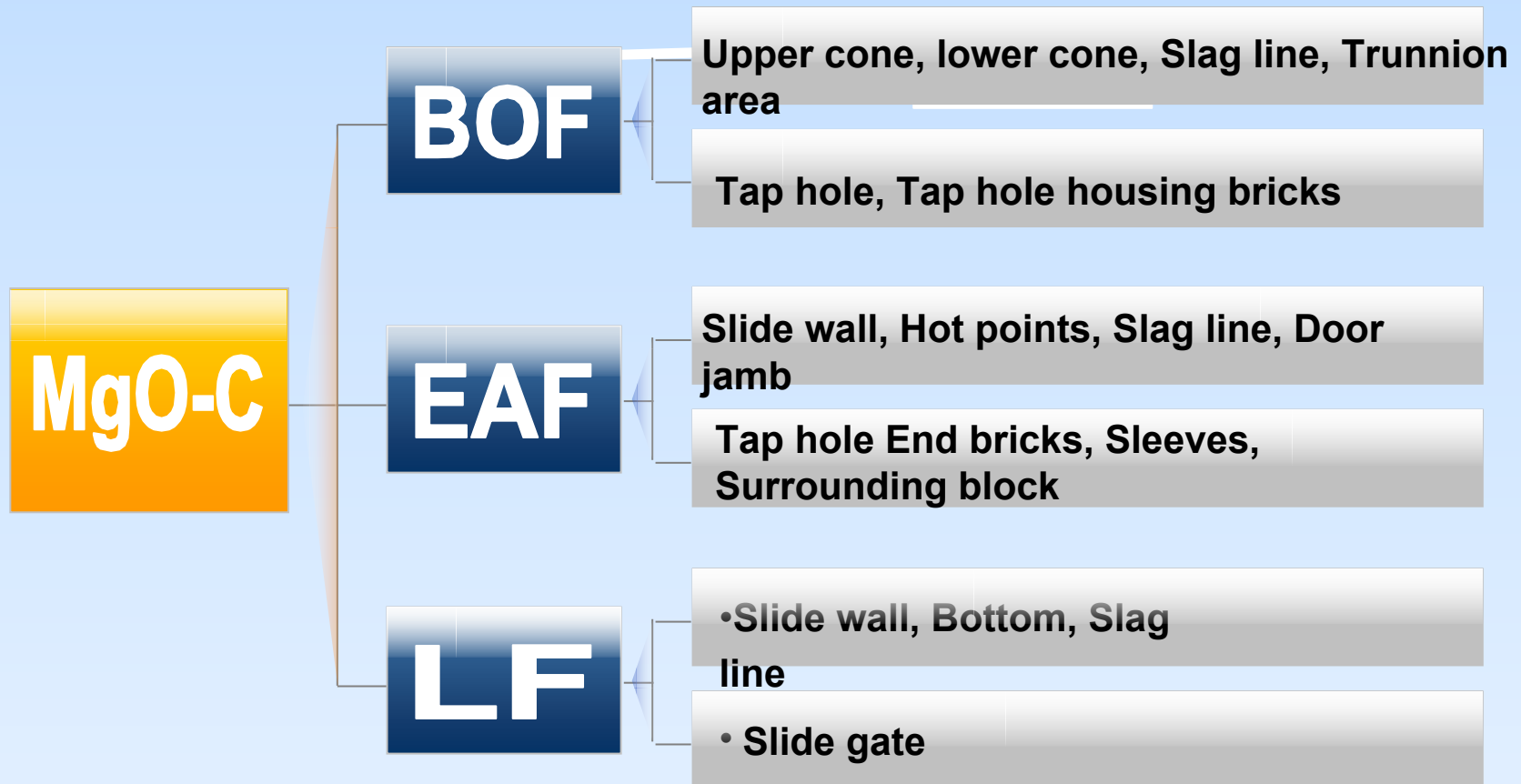


4. Production equipment and testing equipment **SINOMETAL**



5. MgO-C brick application and property

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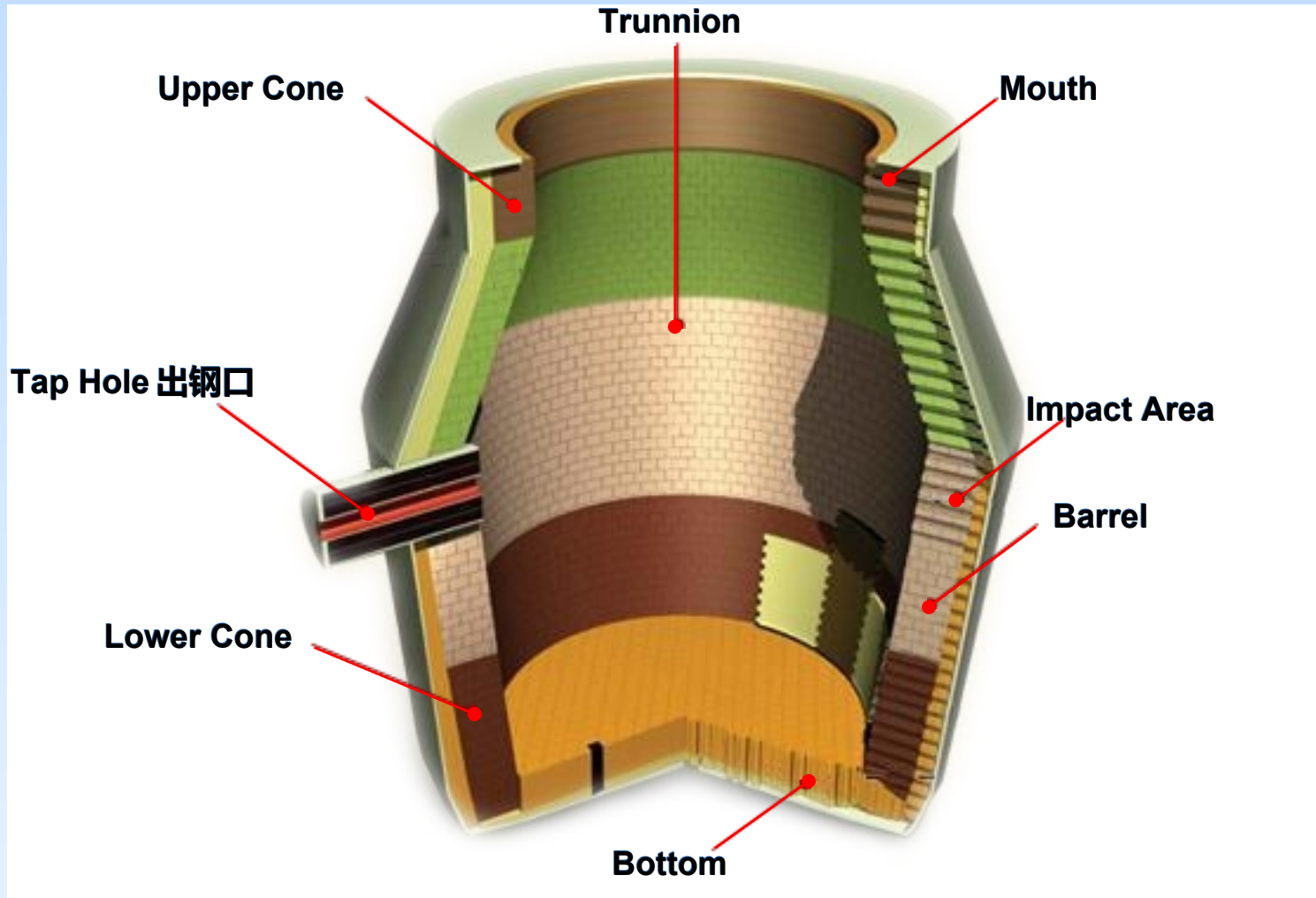
5. MgO-C brick application and property

		
BOF	BOF MgO-C Bricks	BOF MgO Bricks
		
EAF	EAF MgO-C Bricks	EAF MgO-Cr₂O₃ Bricks
		
LF	LF MgO-C Bricks	LF Al₂O₃-MgO-C Bricks

MgO-C main application

5. MgO-C brick application and property

5.1 BOF MgO-C brick introduction



BOF lining refractory structure

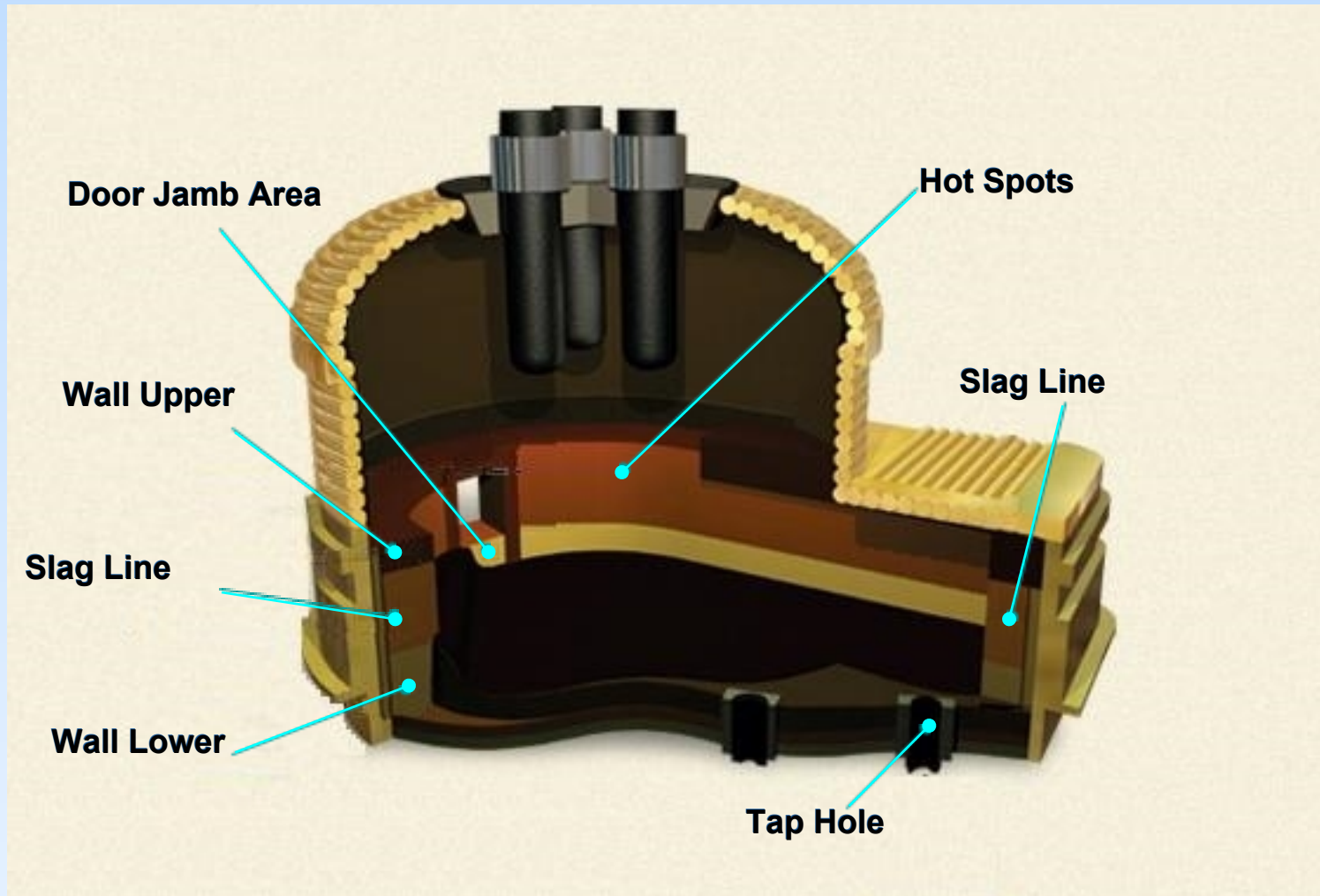
5. MgO-C brick application and property

5.1 BOF MgO-C brick introduction

ITEM	unit	CF-MC -8	CF-MC -10	CF-MC -12	CF-MC -14	CF-MC -15	CF-MC -16	CF- MC-18	CF- MC-20
MgO	%	≥86	≥80	≥78	≥76	≥75	≥74	≥72	≥70
C (+)	%	≥8	≥10	≥12	≥14	≥15	≥16	≥18	≥20
Bulk Density	g/cm ³	≥3.05	≥3.03	≥3.00	≥2.96	≥2.95	≥2.95	≥2.92	≥2.88
Apparent porosity	%	≤4	≤4	≤4	≤3	≤3	≤3	≤3	≤3
C.C.S	MPa	≥45	≥40	≥40	≥40	≥35	≥35	≥35	≥30
M.O.R (1400°C*30ms)	MPa	≥6	≥6	≥6	≥8	≥8	≥8	≥8	≥8
Application		cone			Common			Slag line, Trunion area	

5. MgO-C brick application and property

5.2 EAF MgO-C brick introduction



EAF lining refractory structure

5. MgO-C brick application and property

5.2 EAF MgO-C brick introduction

ITEM	unit	CF-MC-8	CF-MC-10	CF-MC-12	CF-MC-14	CF-MC-18	CF-MC-20
MgO	%	≥84	≥82	≥80	≥78	≥74	≥72
C (+)	%	≥8	≥10	≥12	≥14	≥18	≥20
Bulk Density	g/cm ³	≥3.05	≥3.02	≥3.00	≥2.97	≥2.92	≥2.88
Apparent porosity	%	≤4	≤4	≤4	≤3.5	≤3.5	≤3.5
C.C.S	MPa	≥45	≥40	≥40	≥40	≥35	≥30
M.O.R (1400°C*30m s)	MPa	≥6	≥6	≥8	≥8	≥8	≥8
Application		Slide wall		Common	Hotspots, Slag line		

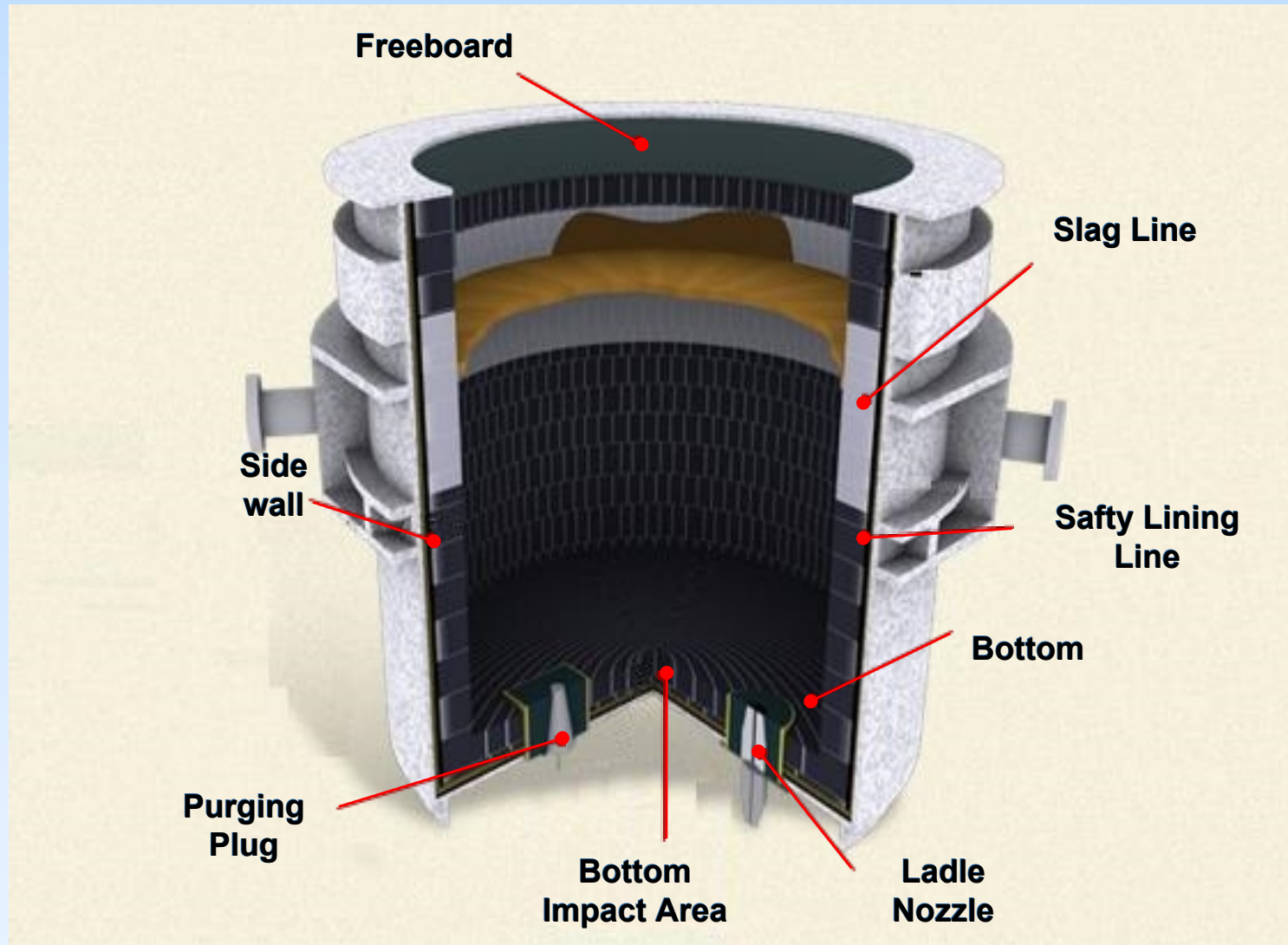
5. MgO-C brick application and property

5.2 EAF MgO-C brick introduction

ITEM	unit	CF-TMC-1	CF-TMC-2	CF-TMC-3
MgO	%	≥92	≥88	≥85
C (+)	%	≥8	≥10	≥14
Bulk Density	g/cm ³	≥3.00	≥3.00	≥3.00
Apparent porosity	%	≤4	≤4	≤4
C.C.S	MPa	≥48	≥48	≥48
M.O.R (1400°C*30ms)	MPa	≥17	≥17	≥17

5. MgO-C brick application and property

5.3 LF MgO-C brick introduction



5. MgO-C brick application and property

5.3 LF MgO-C brick introduction

ITEM	unit	CF-MC-5	CF-MC-8	CF-MC-10	CF-MC-12	CF-MC-14	CF-MC-16	CF-MC-18
MgO	%	≥87	≥84	≥82	≥80	≥76	≥74	≥72
C (+)	%	≥5	≥8	≥10	≥12	≥14	≥16	≥18
Bulk Density	g/cm ³	≥3.10	≥3.08	≥3.02	≥3.00	≥2.97	≥2.95	≥2.93
Apparent porosity	%	≤5	≤5	≤4	≤4	≤3	≤3	≤3
C.C.S	MPa	≥45	≥45	≥40	≥40	≥35	≥35	≥35
M.O.R (1400°C*30ms)	MPa	≥6	≥6	≥8	≥8	≥10	≥10	≥10
Application		Slide wall, Bottom		Common		Slag line		

5. MgO-C brick application and property

5.3 LF MgO-C brick introduction

ITEM	unit	CF-AMC-65	CF-AMC-70	CF-AM spinel C
Al ₂ O ₃	%	≥65	≥70	≥70
MgO	%	≥11	≥11	≥16
C (+)	%	≥9	≥9	≥7
Bulk Density	g/cm ³	≥2.98	≥3.00	≥2.7
Apparent porosity	%	≤8	≤6	≤12
R.U.L in 0.2 Mpa	°C	≥1600	≥1650	≥1560
C.C.S	MPa	≥40	≥45	≥40
Application		Slide wall, Bottom		Lining brick,

6. Quality guarantee

- Five aspects guarantee the product quality.
- 1. Our plant has passed ISO 9001:2008 QMS, and strictly executed the relevant standards.
- 2. Pursue "Quality is the enterprise life" of this principle.
- 3. Set up Technical Inspection Center which is the magnesite material base of Liaoning Province.
- 4. Mature production process and technical support, build up closed cooperation with famous research institutes.
- 5. A wealth of supply experience for large scale I&S company at home and abroad.
- 6. Professional before-sale and after-sale service.

7. Supply reference list

PRODUCTS	CUSTOMER	APPLICATION
MgO-C Bricks	Z GROUP, CZECH REPUBLIC	50MT VD ladle
MgO-C Bricks, Al-MgO-C Bricks	PILSEN STEEL SRO, CZECH REPUBLIC	60MT VOD ladle & 60MT EAF
MgO-C Bricks	POSCO CHEMTECH KOREA	120 MT Ladle and 250 & 350MT Converter
MgO-C Bricks	BELARUSIAN METALLURGICAL PLANT, BELARUS	110MT Ladle
MgO-C Bricks	LLC ELEKTROSTAL, UKRAINE(DMPZ)	50MT ladle & 55MT EAF
MgO-C Bricks	CONSOLIDATED JORDANIAN CO. FOR STEEL INDUSTRY LTD	50MT ladle
MgO-C Bricks	LLOYDS STEEL INDUSTRIES LTD. WARDHA, INDIA	60MT EAF
MgO-C Bricks, Al-MgO-C Bricks	BUSHAN STEEL LTD. INDIA	180MT Ladle
MgO-C Bricks	SOVEL S.A. GREECE	130MT EAF
MgO-C Bricks	AMRELI STEELS LTD. PAKISTAN	35 MT Ladle
MgO-C Bricks	BSRM IRON AND STEEL CO.LTD, BANGLADESH	20 MT LF & 30MT LF
MgO-C Bricks, Al-MgO-C Bricks	HIGHTEC STEEL INDUSTRY CO. SUDAN	22 MT EAF & 22MT LF

7. Supply reference list

PRODUCTS	CUSTOMER(Domestic)	APPLICATION	RESULT
Lining brick for converter	Tangshan Guofeng Iron & Steel Co., Ltd	50、 80、 120 MT converter	above 12000 heats
	Tangshan Youming Iron & Steel Co., Ltd	120MT converter	10000 heats
	Hebei Qianjin Iron & Steel Co., Ltd	50MT converter	8000 heats
Lining bricks for EAF	Tonghua Iron & Steel Co., Ltd	70MT EAF	500 heats
	Jiangyin Xicheng Special Iron & Steel Co., Ltd	50MT EAF	400 heats
	Tangshan Beishiti Iron & Steel Co., Ltd	30、 40MT EAF	300 heats
	Shandong Guangfu Group	50MT EAF	300 heats
	Tangshan Guofeng Iron & Steel Co., Ltd	80、 120MT ladle	110 heats
	The 3rd Steel Mill of Handan Iron & Steel Co.	110MT ladle	100 heats
	Baotong Iron & Steel Co.	210MT ladle	120 heats
Bricks for refining ladle	Tianjin Rongcheng Iron & Steel Co., Ltd	100MT ladle	115 heats
	Jiangxi Xinyu Iron & Steel Co.	120MT ladle	80 heats
	Anyang Iron & Steel Co.	100MT ladle	100 heats
	Fujina Sanming Iron & Steel Co., Ltd	100MT ladle	120 heats