



盛和耐材
SHENGHE REFRACTORIES

EXCELLENCE IN REFRACTORIES



SHENGHE REFRACTORIES | SH-REFRACTORIES.COM



Company INTRODUCTION

YINGKOU SHENGHE REFRATORIES MANUFACTURING CO., LTD is a worldwide leading manufacturer of Refractory materials located in Dashiqiao, Magnesium City of China.

SHENGHE REFRATORIES has 37,000m² facilities and 200 employees where there is a production for Magnesia Carbon Bricks, Alumina Magnesia Carbon Brick, Dolomite Bricks, Monolithic Castable, Delta Castable, Neutral Lining for Induction Furnace and Unshaped mix products.

In **SHENGHE REFRATORIES** we have raw material processing facilities in-house, which give us the full access to the selection of best quality of mineral ore and process into shaped, unshaped products. XRD is being used as to determine the mineral phase of the raw material to ensure the best quality raw material to be used into the process of shape and unshaped refractories.

SHENGHE REFRATORIES uses advanced production technology, semi-automated facilities and applies the highest possible quality standards. Our philosophy is durability, reliability and the ability to produce at competitive condition. Through professional cooperation with local partner, SHENGHE REFRATORIES can offer a complete package, from design and production to supply, installation, after sales and maintenance.





COMPANY OVERVIEW

01

QUALITY CERTIFICATE ISO9001:2008 AND ISO14001:2015



02

ENGINEERING INTO THERMA PROCESS SOLUTIONS PERSISTENT ENGINEERING WITH HIGH QUALITY RAW MATERIAL COMBINATIONS



03

STATE-OF-ART MANUFACTURING FACILITIES



04

RECOGNIZED WORLDWIDE ADVANCED PRODUCTION TECHNOLOGY AND APPLIES THE HIGHEST POSSIBLE QUALITY STANDARDS.



05

COMPLETE REFRACTORIES SOLUTION OFFER COMPLETE PACKAGE FROM DESIGN AND PRODUCTION TO SUPPLY, INSTALLATION, AFTER-SALES AND MAINTAINANCE



YOUR TRUST PARTNER TO BUILD ON



WE ARE SHENGHE REFRACTORIES



SHENGHE REFRACTORIES OFFER TO YOU

We are here to offer you complex customer service that includes:

- Design of every type of refractory linings.
- Engineering and technical advice
- Supply of refractory materials
- Full-turnkey solution for setting up Arc Furnace, Ladle Furnace Refractories
- Installation supervision and installation of refractory material
- Monitoring of the refractory operation and customer's production processes
- Training in the field of utilization of refractory material

Scope of Services

Serving the Industry

SHENGHE REFRACTORIES uses advanced production technology, semi-automated facilities and applies the highest possible quality standards. Our philosophy is durability, reliability and the ability to produce at competitive condition. Through professional cooperation with local partner, SHENGHE REFRACTORIES can offer a complete package, from design and production to supply, installation, after sales and maintenance.

Engineering into Therma Process Solutions

SHENGHE REFRACTORIES work in R&D laboratories in the plants on topics such as developments for customers and qualification of raw materials. A total of 20 employees are assigned to R&D work. We have greater in-depth cooperation with customers would have resolve issues in their production operations, achieving a greater number of heats and boost the efficiency of steel production.

Quality Management

SHENGHE REFRACTORIES executes ISO9001:2008 Quality system management standard and ISO14001:2004 Environment system management standard. SHENGHE REFRACTORIES consistently work with the world's most respected customers to provide and develop the most complete refractory solutions to achieve cost and time saving for prolonged service life.

AUTOMATIC BATCHING



INNOVATION From Production to Full Turnkey



FULL-TURNKEY SOLUTION

BOF CONVERTOR



FULL-TURNKEY SOLUTION

ELECTRIC ARC FURNACE



FULL-TURNKEY SOLUTION

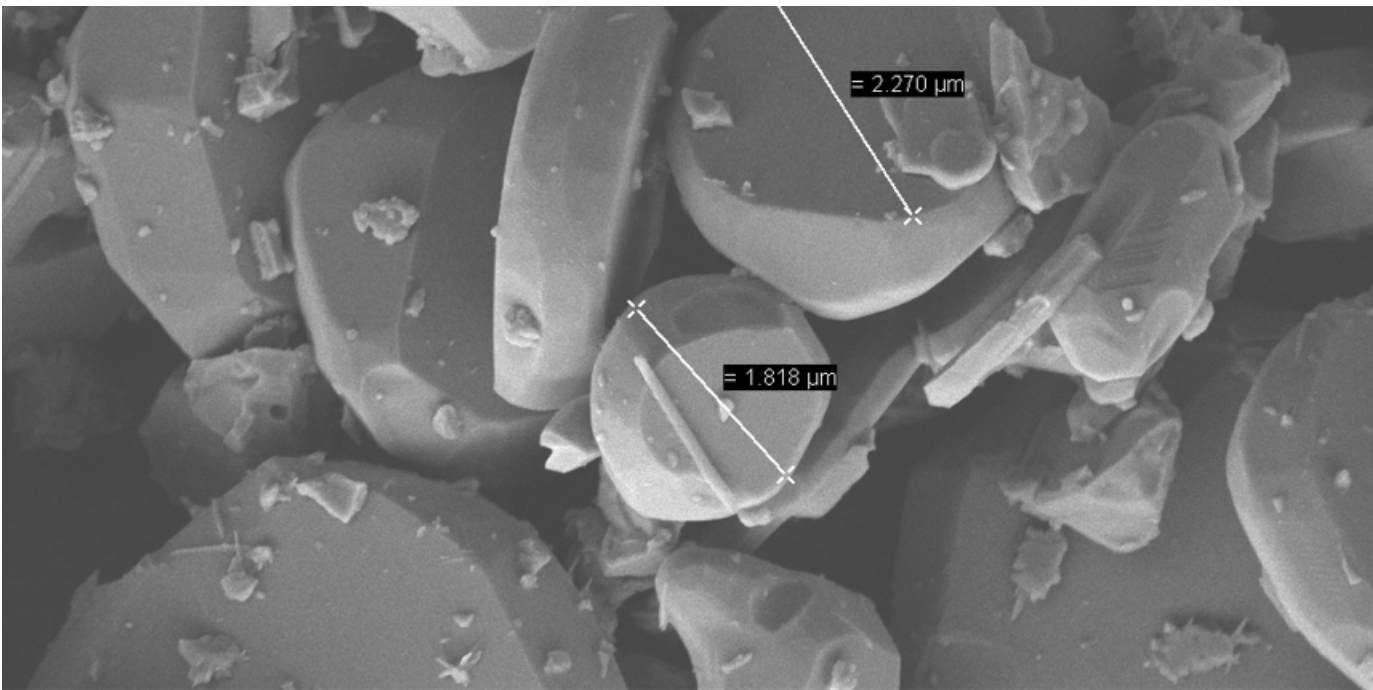
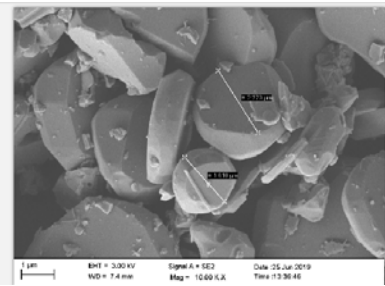
LADLE FURNACE





FESEM

Field emission scanning electron microscopy (FESEM) provides topographical and elemental information at magnifications of 10x to 300,000x, with virtually unlimited depth of field. In SH Refractories, we use FESEM to analysis the microspoic microstructure of incoming raw material.



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XRF Analyzer

XRF is an X-ray spectrometric technique for elementaanalysis of a wide variety of materials. In SH Refractories, XRF is used to analysis the chemical composition of refractory materials. $MgO, Al_2O_3, SiO_2, Fe_2O_3, Cr_2O_3, CaO, Na_2O$

元素名称	元素符号	含量 (%)	元素名称	元素符号	含量 (%)
Al ₂ O ₃	Al	99.65%	SiO ₂	Si	0.35%
Fe ₂ O ₃	Fe	0.01%	Cr ₂ O ₃	Cr	0.01%
CaO	Ca	0.01%	Na ₂ O	Na	0.01%

Test sample: Al_2O_3 99.65%, and all other minority contents of minerals

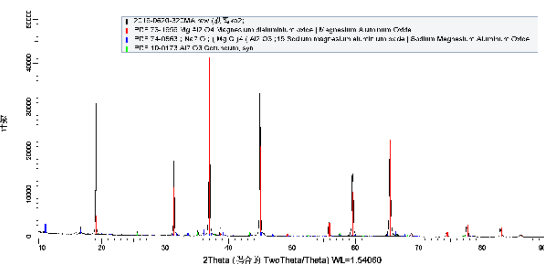
元素名称	元素符号	含量 (%)	元素名称	元素符号	含量 (%)
Al_2O_3	Al	77.89%	MgO	Mg	20.98%
SiO ₂	Si	0.12%	Fe ₂ O ₃	Fe	0.01%
Cr ₂ O ₃	Cr	0.01%	CaO	Ca	0.01%

Test sample: Al_2O_3 77.89%, MgO 20.98% and other minority contents of minerals



XRD Analyzer

XRD X-ray powder diffraction (XRD) is a rapid analytical technique primarily used for phase identification of a crystalline material and can provide information on unit cell dimensions. The analyzed material is finely ground, homogenized, and average bulk composition is determined. XRD is being used as to determined the mineral phase of the raw material

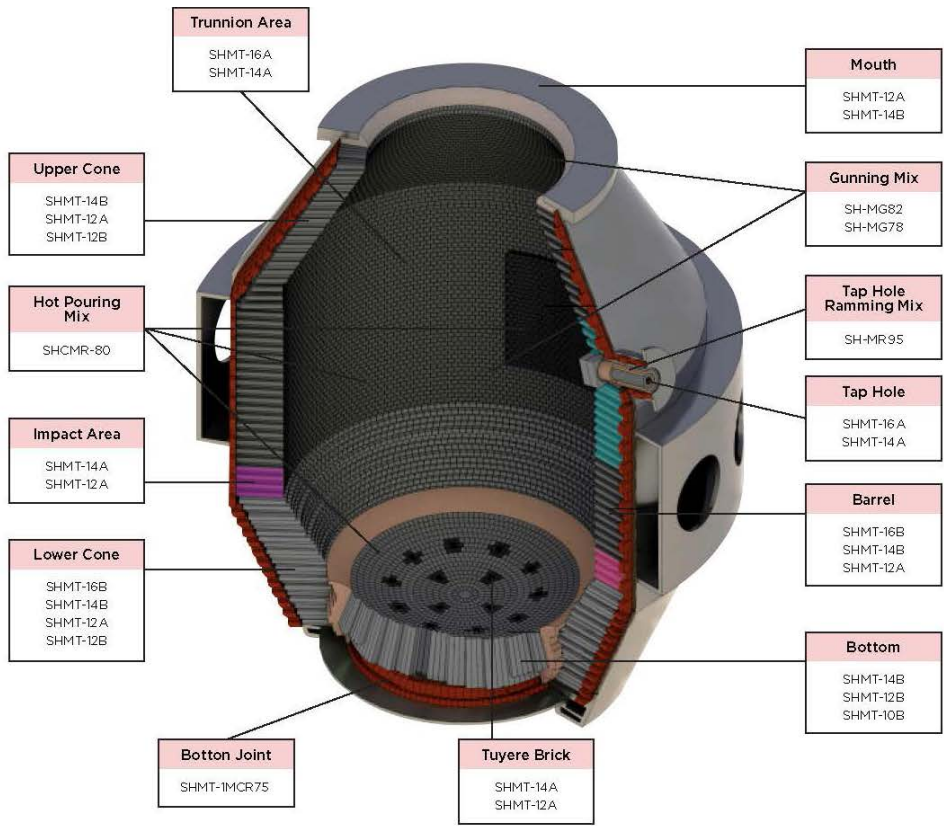


HIGH QUALITY STANDARD
PERFECTION FROM EVERY ASPECT



REFRACTORY BRICKS

BOF FURNACE



Basic oxygen steelmaking (BOF)

Basic oxygen converter process is a method of primary steelmaking in which carbon-rich molten pig iron is made into steel. Blowing oxygen through molten pig iron lowers the carbon content of the alloy and changes it into low-carbon steel.

Carbon-bonded, tempered Magnesia bricks are state of the art for today's steel production in BOF Converters. High-quality magnesia raw materials ensure the life performance and enable metallurgical process control in modern steelmaking. There are various carbon contents of 5 to 15 % available.



Magnesia Carbon Brick

MT SUPER SERIES brick contains 98% high-purity fused magnesium oxide, 5 - 14% carbon, and antioxidants. This brick performs well where corrosion by arc temperature and slag contact, especially over stir plugs. Resistance to thermal shock is good due to the high carbon.

Composition: MAGNESIA, GRAPHITE, ANTIOXIDANTS

Features: High Refractoriness, High Wearing Strength

- High resistance to erosion and corrosion caused by arc temperature and slag contact
- Excellent in Anti Oxidation

MAGNESIA CARBON BRICK FOR CONVERTOR WORKING LINING

INDEX		SHMT-16A	SHMT-16B	SHMT-14A	SHMT-14B	SHMT-12A	SHMT-12B	SHMT-10B
Chemical Composition	MgO ≥	74	72	76	74	78	77	79
	C ≥	16	16	14	14	12	12	10
A.P. (%) ≤		3.5	3.5	3.5	3.5	4	4	4.5
B.D. (g/cm³)		3.00 ± 0.05	3.00 ± 0.05	3.03 ± 0.05	2.98 ± 0.05	3.05 ± 0.05	3.02 ± 0.05	3.05 ± 0.05
C. C. S. (MPa) ≥		35	35	40	35	40	35	40
HMOR 1400°C X 30 min (MPa) ≥		8	-	10	-	6	-	-



UHSHAPED REFRACTORIES

BOF FURNACE

UHSHAPED REFRACTORIES FOR CONVERTOR WORKING LINING

APPLICATION		Repairing mix	Gunning mix		Repairing mix for tap hole	Ramming mix for bottom
INDEX		SH-CRM80	SH-MG82	SH-MG78	SH-MR95	SH-MCR75
Chemical Composition (%)	MgO ≥	80	82	78	95	75
	CaO ≥	1 - 4	2 - 6	8 - 12	2	3
	Cr ₂ O ₃ ≤	-	-	-	1 - 3	-
	F.C ≤	8	-	-	SiO _{1.5} ≥ 2	10
Size (mm)		0 - 10	0 - 3	0 - 3	0 - 5	0 - 8
Sintering time (min)		30 - 40	-	-	10 - 30	-
C. C. S. (MPa)	≥	35	40	35	40	40
HMOR 1400°C X 30 min (MPa)	≥	8	10	-	6	6



Gunning Robot for HOT REPAIR FOR EAF, Ladle, RH

LIGHT BURNED MAGNESIA BALL

Product Name	Part Number	MgO (%)	Water (%)	C (%)	I.L (%)	Size (mm)
Magnesite Ball	SH-MP65	60 - 68	≤ 3	-	≤ 25	30 - 60
Adjust Slag Agent	SH-MP55	55 - 65	≤ 3	≥ 5	≤ 25	30 - 60

STOPPING-SLAG BALL AND STOPPING-SLAG CONE

Product Name	Part Number	Al ₂ O ₃ + Fe ₂ O ₃ (%)	B.D (g/cm ³)	C. C. S. (MPa)	Refractoriness (°C)
Stopping-slag ball	SH-SSB	81 - 86	3.90 - 4.30	≥ 20	1730
Stopping-slag cone	SH-SSC	80 - 85	≥ 3.40	≥ 30	1730



Light Burned Magnesia Ball



Stop-Slag Ball



REFRACTORY BRICKS

BOF FURNACE



■ ■ ■ STANDARD BRICK DIMENSION FOR CONVERTOR REFRACTORY BRICK

SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
40/0	150	150	400	100	6.00
40/8	154	146	400	100	6.00
20/40	160	140	400	100	6.00
40/40	170	130	400	100	6.00
40/80	190	110	400	100	6.00
45/0	150	150	450	100	6.75
45/8	154	146	450	100	6.75
45/20	160	140	450	100	6.75
45/60	180	120	450	100	6.75
45/90	195	105	450	100	6.75
50/0	150	150	500	100	7.50
50/8	154	146	500	100	7.50
50/20	160	140	500	100	7.50
50/36	168	132	500	100	7.50
50/60	180	120	500	100	7.50
50/100	200	100	500	100	7.50

■ ■ ■ STANDARD BRICK DIMENSION FOR CONVERTOR REFRACTORY BRICK

SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
55/0	150	150	550	100	8.25
55/8	154	146	550	100	8.25
55/20	160	140	550	100	8.25
55/36	168	132	550	100	8.25
55/60	180	120	550	100	8.25
55/110	205	95	550	100	8.25
60/0	150	150	600	100	9.00
60/8	154	146	600	100	9.00
60/20	160	140	600	100	9.00
60/36	168	132	600	100	9.00
60/60	180	120	600	100	9.00
60/110	210	90	600	100	9.00
65/0	150	150	650	100	9.75
65/8	154	146	650	100	9.75
65/20	160	140	650	100	9.75
65/36	168	132	650	100	9.75
65/60	180	120	650	100	9.75
70/0	150	150	700	100	10.50
70/8	154	146	700	100	10.50
70/20	160	140	700	100	10.50
70/36	168	132	700	100	10.50
70/60	180	120	700	100	10.50
70/120	210	90	700	100	10.50



REFRACTORY BRICKS

BOF FURNACE

■ ■ ■ STANDARD BRICK DIMENSION FOR CONVERTOR REFRACTORY BRICK

SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
75/0	150	150	750	100	11.25
75/8	154	146	750	100	11.25
75/20	160	140	750	100	11.25
75/36	168	132	750	100	11.25
75/60	180	120	750	100	11.25
55/110	205	95	550	100	8.25

80/0	150	150	800	100	12.00
80/8	154	146	800	100	12.00
80/20	160	140	800	100	12.00
80/36	168	132	800	100	12.00
80/60	180	120	800	100	12.00

85/0	150	150	850	100	12.75
85/8	154	146	850	100	12.75
85/20	160	140	850	100	12.75

■ ■ ■ STANDARD BRICK DIMENSION FOR CONVERTOR REFRACTORY BRICK

SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
90/0	150	150	900	100	13.50
90/8	154	146	900	100	13.50
90/20	160	140	900	100	13.50
90/36	168	132	900	100	13.50
90/60	180	120	900	100	13.50
90/80	190	110	900	100	13.50

95/20	160	140	950	100	14.25
95/80	190	110	950	100	14.25

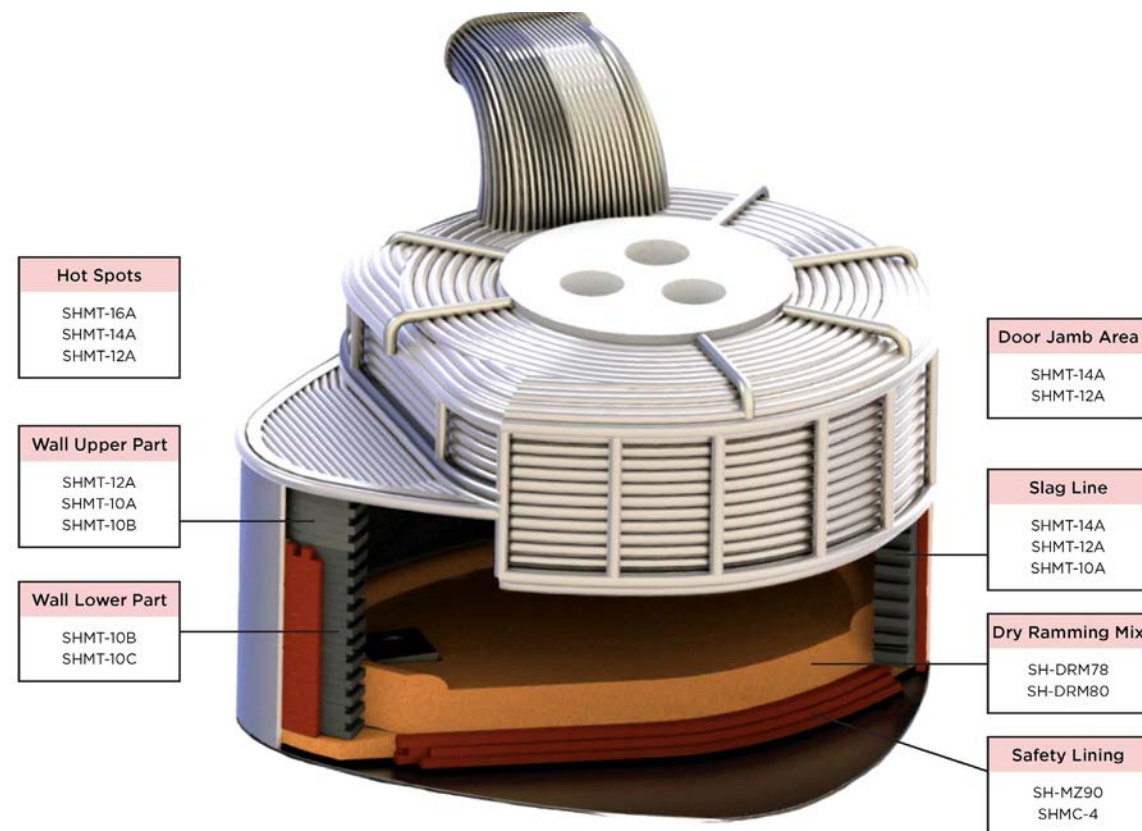
100/20	160	140	1000	100	15.00
100/80	190	110	1000	100	15.00

110/20	160	140	1100	100	16.50
110/80	190	110	1100	100	16.50

120/0	150	150	1200	100	18.00
120/80	190	110	1200	100	18.00

REFRACTORY BRICKS

ELECTRIC ARC FURNACE



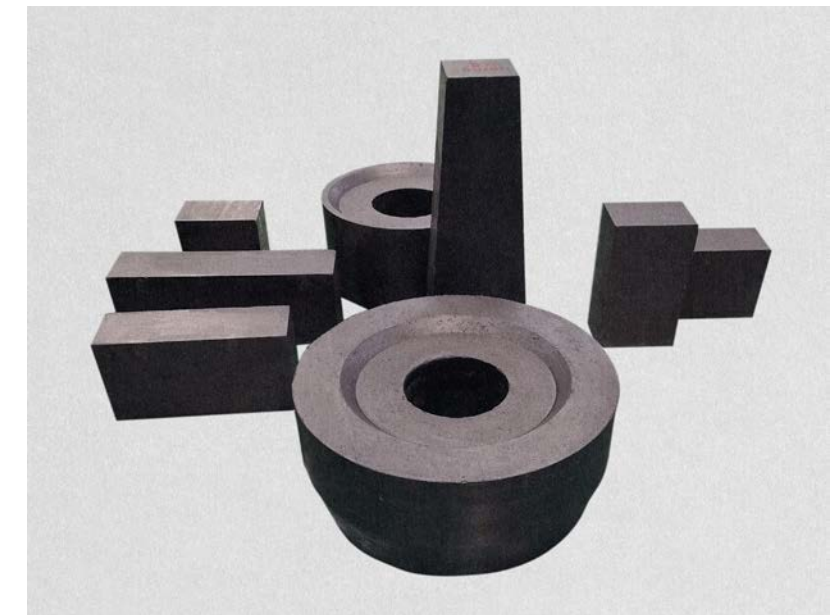
Magnesia Carbon Brick

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Composition: MAGNESIA, GRAPHITE, ANTIOXIDANTS

Features: High Refractoriness, High Wearing Strength

- High resistance to erosion and corrosion caused by arc temperature and slag contact
- Excellent in Anti Oxidation



MAGNESIA CARBON BRICK FOR EAF WORKING LINING

INDEX		SHMT-16A	SHMT-14A	SHMT-14B	SHMT-12A	SHMT-10A	SHMT-10B	SHMT-10C	SHMC-4	SH-ASC-W	SH-MZ90
Chemical Composition (%)	MgO $\geq$	74	76	74	78	80	79	77	85	-	91
	Al ₂ O ₃ $\geq$	-	-	-	-	-	-	-	-	75	-
	C $\geq$	16	14	14	12	10	10	10	5	SiC+C $\geq$ 20	CaO $\leq$ 3.0
A.P. (%) $\leq$		3.5	3.5	3.5	4	4	4.5	5	5	4	18
B.D. (g/cm ³)		3.00 $\pm$ 0.05	3.03 $\pm$ 0.05	2.98 $\pm$ 0.05	3.05 $\pm$ 0.05	3.10 $\pm$ 0.05	3.05 $\pm$ 0.05	3.00 $\pm$ 0.05	3.15 $\pm$ 0.05	3.05 $\pm$ 0.05	~ 2.90 3.10
C. C. S. (MPa) $\geq$		35	40	35	40	40	40	35	50	45	60
HMOR 1400°C X 30 min (MPa) $\geq$		8	10	-	6	6	-	-	-	-	-



REFRACTORY BRICKS

ELECTRIC ARC FURNACE

■ ■ ■ STANDARD BRICK DIMENSION FOR EAF REFRACTORY BRICK

SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
40/0	150	150	400	100	6.00
40/8	154	146	400	100	6.00
20/40	160	140	400	100	6.00
40/40	170	130	400	100	6.00
40/80	190	110	400	100	6.00
45/0	150	150	450	100	6.75
45/8	154	146	450	100	6.75
45/20	160	140	450	100	6.75
45/60	180	120	450	100	6.75
45/90	195	105	450	100	6.75
50/0	150	150	500	100	7.50
50/8	154	146	500	100	7.50
50/20	160	140	500	100	7.50
50/36	168	132	500	100	7.50
50/60	180	120	500	100	7.50
50/100	200	100	500	100	7.50

■ ■ ■ STANDARD BRICK DIMENSION FOR EAF REFRACTORY BRICK

SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
55/0	150	150	550	100	8.25
55/8	154	146	550	100	8.25
55/20	160	140	550	100	8.25
55/36	168	132	550	100	8.25
55/60	180	120	550	100	8.25
55/110	205	95	550	100	8.25
60/0	150	150	600	100	9.00
60/8	154	146	600	100	9.00
60/20	160	140	600	100	9.00
60/36	168	132	600	100	9.00
60/60	180	120	600	100	9.00
60/110	210	90	600	100	9.00
65/0	150	150	650	100	9.75
65/8	154	146	650	100	9.75
65/20	160	140	650	100	9.75
65/36	168	132	650	100	9.75
65/60	180	120	650	100	9.75
70/0	150	150	700	100	10.50
70/8	154	146	700	100	10.50
70/20	160	140	700	100	10.50
70/36	168	132	700	100	10.50
70/60	180	120	700	100	10.50
70/120	210	90	700	100	10.50



UHSHAPED -REFRACTORY

ELECTRIC ARC FURNACE



Gunning Mix



Dry ramming for Bottom



MAGNESIA RAMMING HEARTH FOR EAF



PRE-CAST-ROOF FOR EAF

UHSHAPED REFRACTORIES FOR EAF

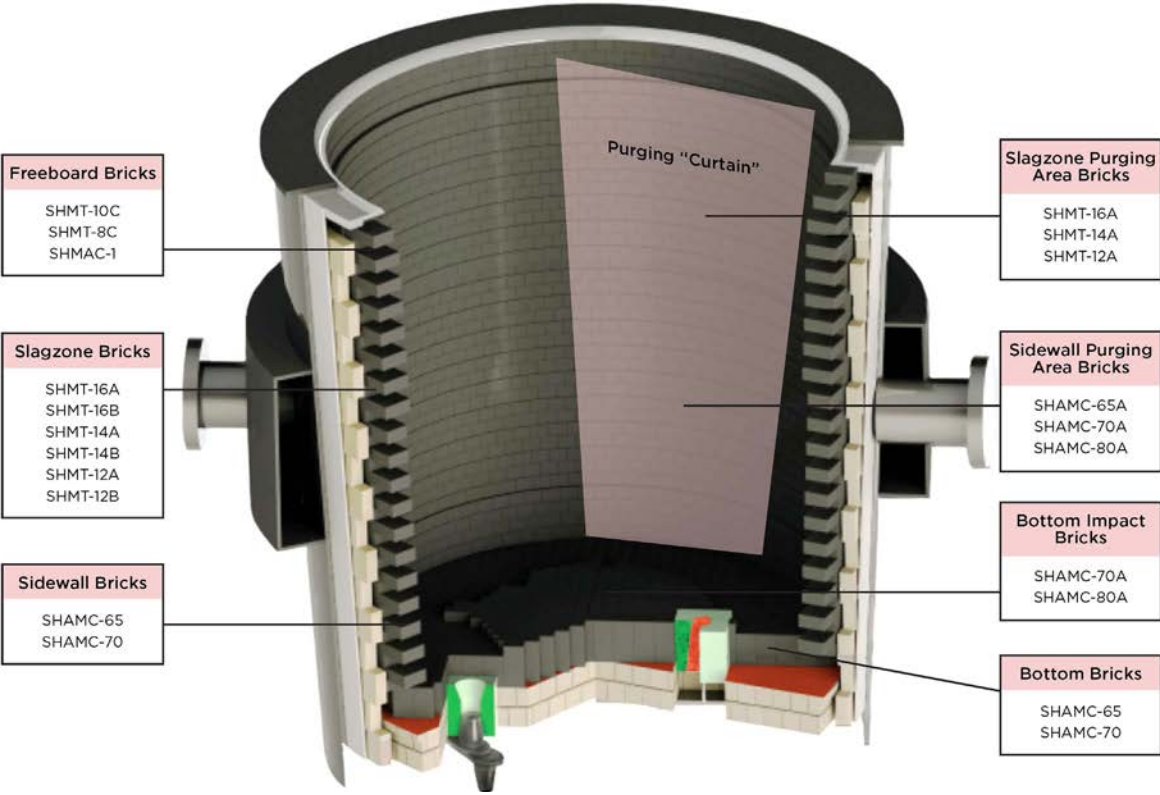
APPLICATION		Dry ramming mix bottom		Hot repair mix bottom	Gunning mix		EBT filling mix
INDEX		SH-DRM78	SH-DRM80	SH-HRM80	SH-MG82	SH-MG78	SH-FTP55
Chemical Composition (%)	MgO ≥	78	80	80	82	78	65-55
	CaO ≥	13-15	6-9	7-9	4-6	8-12	-
	SiO ₂ ≤	1.3	1.5	1.5	-	-	25-35
	Fe ₂ O ₃	4.5-3.5	9-5	7-5	-	-	-
	I.L ≤	0.5	0.5	2.0	-	-	-
A.P. (%) ≤		3.5	3.5	3.5	4	4	4.5
B.D. (g/cm ³)		3.00 ± 0.05	3.03 ± 0.05	2.98 ± 0.05	3.05 ± 0.05	3.10 ± 0.05	3.05 ± 0.05

CORUNDUM-SPINEL CASTABLE MIX

INDEX		Castable mix for roof		Precast-roof for EAF	
		SH-ACF90	SH-MRM95	SH-DLD92	SH-DLD94
Chemical Composition (%)	Al ₂ O ₃ ≥	90	90	-	-
	Al ₂ O ₃ +MgO+Cr ₂ O ₃ ≥	-	Cr2O2.0 ≤ 3	92	94
	CaO ≥	2.5	2	-	-
B.D. (g/cm ³)	110°C x 24h ≤	3.0	3.2	3.10	3.2
CMOR (MPa)	110°C x 24h	6	10	10	10
	1600°C x 3h	12	12	12	12
C. C. S. (MPa)	110°C x 24h ≥	40	50	50	50
	1600°C x 3h	80	80	60	70
L.C.R (%)	1600°C x 3h ≥	± 0.5	1.0-0	1.0-0	1.0-0

REFRACTORY BRICKS

LADLE



Magnesia Carbon Brick FOR LADLE SOLUTIONS

Composition: MAGNESIA, GRAPHITE, ANTIOXIDANTS

Features: Carbon Bonded Working Linings

- Excellent in corrosion resistance
- Potential to increase ladle capacity
- Maintaining good resistance to thermo-mechanical cracking and spalling
- Provide optimized ladle lining design to increase ladle capacity and utilizing the thinnest lining
- Prolong Service life and reduce down time

MAGNESIA CARBON BRICK

INDEX		SHMT-16A	SHMT-16B	SHMT-14A	SHMT-14B	SHMT-12A	SHMT-12B	SHMT-10A	SHMT-10B	SHMT-10C
Chemical Composition (%)	MgO ≥	74	72	76	74	78	77	80	79	77
	Al ₂ O ₃ ≥	-	-	-	-	-	-	-	-	-
	C ≥	16	16	14	14	12	12	10	10	10
A.P. (%) ≤		3.5	3.5	3.5	3.5	4	4	4	4.5	5
B.D. (g/cm ³)		3.00 ± 0.05	2.95 ± 0.05	3.03 ± 0.05	2.98 ± 0.05	3.05 ± 0.05	3.02 ± 0.05	3.10 ± 0.05	3.05 ± 0.05	3.00 ± 0.05
C. C. S. (MPa) ≥		35	35	40	35	40	35	40	40	35
HMOR 1400°C X 30 min (MPa) ≥		8	-	10	-	6	-	6	-	-

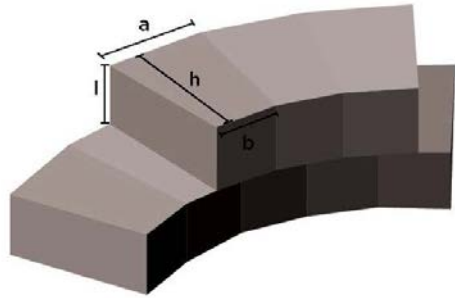
ALUMINA MAGNESIA CARBON BRICK

INDEX		SFMT-8A	SFMT-8B	SFMT-8C	SFMAC-65A	SFMAC-65	SFMAC-70A	SFMAC-70	SFMAC-80A	SFMAC-1
Chemical Composition (%)	MgO ≥	84	84	84						
	Al ₂ O ₃ ≥	-	-	-	70	65	72	70	80	15
	C ≥	8	8	8	8	8	8	8	8	10
A.P. (%) ≤		6	5	6	7	7	7	7	7	5
B.D. (g/cm ³)		3.10 ± 0.05	3.08 ± 0.05	2.98 ± 0.05	3.15 ± 0.05	3.10 ± 0.05	3.20 ± 0.05	3.15 ± 0.05	3.25 ± 0.05	3.05 ± 0.05
C. C. S. (MPa) ≥		40	45	40	45	45	45	45	45	45
HMOR 1400°C X 30 min (MPa) ≥		6	-	-	-	-	-	-	-	-



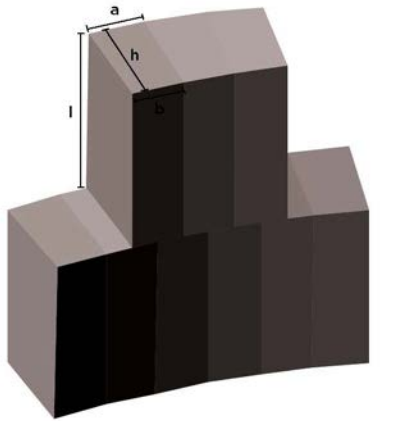
STANDARD BRICKS DIMENSION

LADLE



■ ■ ■ MK-SHAPE

SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
MK6/8	154	146	152.4	100	2.286
MK6/20	160	140	152.4	100	2.286
MK6/30	165	135	152.4	100	2.286
MK6/40	170	130	152.4	100	2.286
MK7/8	154	146	177.8	100	2.667
MK7/20	160	140	177.8	100	2.667
MK7/30	165	135	177.8	100	2.667
MK7/40	170	130	177.8	100	2.667
MK8/8	154	146	203.2	100	3.048
MK8/20	160	140	203.2	100	3.048
MK8/30	165	135	203.2	100	3.048
MK8/40	170	130	203.2	100	3.048



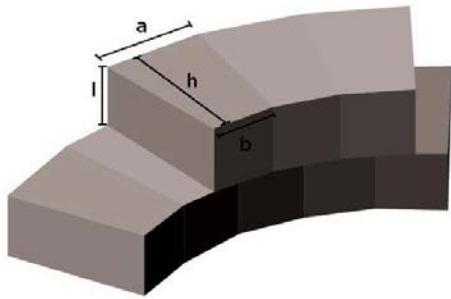
■ ■ ■ P-SHAPE

SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
3P0	100	100	155	250	3.875
3P6	103	97	155	250	3.875
3P8	104	96	155	250	3.875
3P10	105	95	155	250	3.875
3P20	110	90	155	250	3.875
4P0	100	100	187	250	4.675
4P8	104	96	187	250	4.675
4P10	105	95	187	250	4.675
4P12	106	94	187	250	4.675
5P0	100	100	220	250	5.500
5P8	104	96	220	250	5.500
5P16	108	92	220	250	5.500
5P22	111	89	220	250	5.500
6P10	105	95	250	250	6.250
6P18	109	91	250	250	6.250
6P26	113	87	250	250	6.250



STANDARD BRICKS DIMENSION

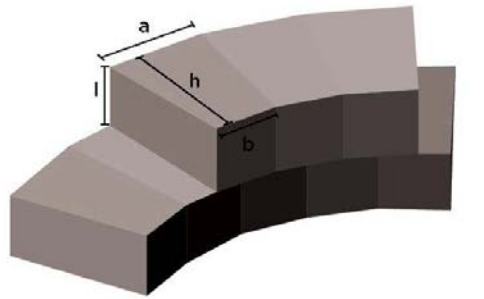
LADLE



KEY SHAPES

SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
20/0	150	150	200	100	3.00
20/8	154	146	200	100	3.00
20/40	170	130	200	100	3.00
25/0	150	150	250	100	3.75
25/8	154	146	250	100	3.75
25/B	225	225	250	100	3.75
25/16	158	142	250	100	3.75
25/20	160	140	250	100	3.75
25/30	165	135	250	100	3.75
25/40	170	130	250	100	3.75
25/60	180	120	250	100	3.75
30/0	150	150	300	100	4.50
30B	225	225	300	100	6.75
35/0	150	150	350	100	5.25
35/B	225	225	350	100	7.88

MINI-KEY MK SHAPES



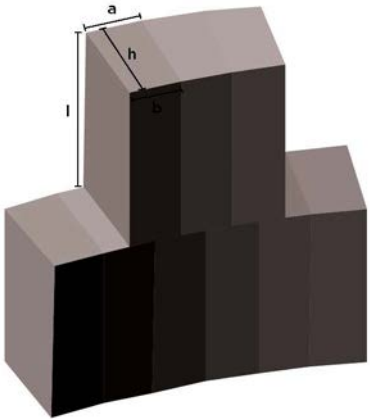
SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
3P0	100	100	155	250	3.875
3P6	103	97	155	250	3.875
3P8	104	96	155	250	3.875
3P10	105	95	155	250	3.875
3P20	110	90	155	250	3.875
4P0	100	100	187	250	4.675
4P8	104	96	187	250	4.675
4P10	105	95	187	250	4.675
4P12	106	94	187	250	4.675
5P0	100	100	220	250	5.500
5P8	104	96	220	250	5.500
5P16	108	92	220	250	5.500
5P22	111	89	220	250	5.500
6P10	105	95	250	250	6.250
6P18	109	91	250	250	6.250
6P26	113	87	250	250	6.250



STANDARD BRICKS DIMENSION

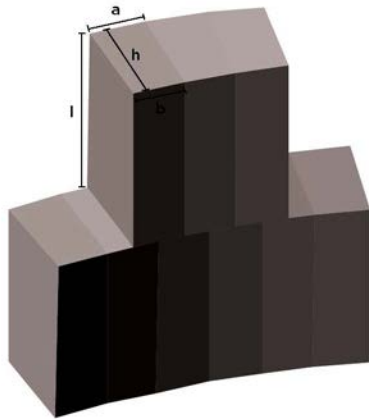
LADLE

■ ■ ■ AW-SHAPES



SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
AW116	80	73	114	230	2.006
AW118	80	77	114	230	2.058
AW136	80	71	130	230	2.257
AW138	80	77	130	230	2.347
AW156	80	71	150	230	2.605
AW158	80	77	150	230	2.708
AW176	80	68	170	230	2.893
AW177	80	72	170	230	2.972
AW178	80	76	170	230	3.050
AW196	80	68	190	230	3.234
AW197	80	72	190	230	3.321
AW198	80	76	190	230	3.409

■ ■ ■ LW-SHAPES

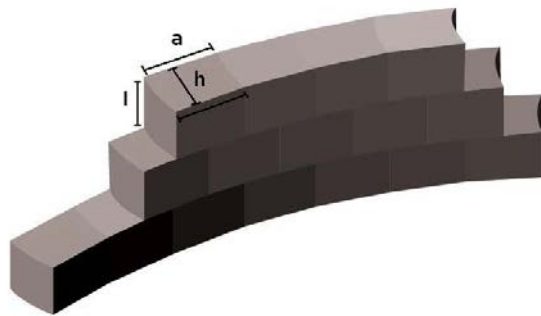


SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
LW110	80	80	114	230	2.098
LW111	80	70	114	230	1.967
LW112	80	60	114	230	1.835
LW130	80	80	130	230	2.392
LW131	80	70	130	230	2.243
LW132	80	60	130	230	2.093
LW13X	80	75	130	230	2.317
LW150	80	80	150	230	2.760
LW151	80	70	150	230	2.588
LW152	80	60	150	230	2.415
LW15X	80	75	150	230	2.674
LW180	80	80	180	230	3.312
LW181	80	70	180	230	3.105
LW182	80	60	180	230	2.898
LW18X	80	75	180	230	3.209
LW200	80	80	200	230	3.680
LW201	80	70	200	230	3.450
LW202	80	60	200	230	3.220
LW230	80	80	230	230	4.232
LW231	80	70	230	230	3.968
LW232	80	60	230	230	3.703
LW250	80	80	250	230	4.600
LW251	80	70	250	230	4.313
LW252	80	60	250	230	4.025



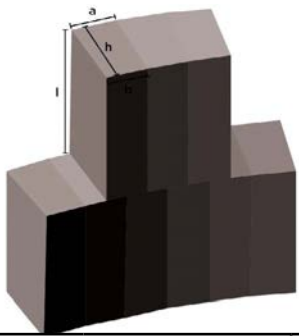
STANDARD BRICKS DIMENSION

LADLE



SU-SHAPES

SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
SU430	210	189	101.6	100	2.03
SU445	210	196	101.6	100	2.06
SU530	210	183	127	100	2.50
SU545	210	192	127	100	2.55
SU560	210	197	127	100	2.58
SU630	210	178	152.4	100	2.96
SU645	210	189	152.4	100	3.04
SU660	210	194	152.4	100	3.08
SU730	210	173	177.8	100	3.41
SU736	210	179	177.8	100	3.46
SU745	210	185	177.8	100	3.51
SU760	210	191	177.8	100	3.57
SU830	210	168	203.2	100	3.84
SU836	210	174	203.2	100	3.91
SU845	210	182	203.2	100	3.98
SU860	210	189	203.2	100	4.05
SU930	210	163	228.6	100	4.26
SU945	210	178	228.6	100	4.44
SU960	210	186	228.6	100	4.53



P-SHAPES

SHAPE	Dimension (mm)				Vol. dm3
	a	b	h	l	
1P0	125	125	90	250	2.813
1P8	129	121	90	250	2.813
2P10	130	120	124	250	3.875
2P16	133	117	124	250	3.875
2P24	137	113	124	250	3.875
2P36	143	107	124	250	3.875
3P0	100	100	155	250	3.875
3P6	103	97	155	250	3.875
3P8	104	96	155	250	3.875
3P10	105	95	155	250	3.875
3P20	110	90	155	250	3.875
4P0	100	100	187	250	4.675
4P8	104	96	187	250	4.675
4P10	105	95	187	250	4.675
4P12	106	94	187	250	4.675
4P16	108	92	187	250	4.675
4P22	111	89	187	250	4.675
5P0	100	100	220	250	5.500
5P8	104	96	220	250	5.500
5P16	108	92	220	250	5.500
5P22	111	89	220	250	5.500
6P10	105	95	250	250	6.250
6P18	109	91	250	250	6.250
6P26	113	87	250	250	6.250
7P12	106	94	280	250	7.000
7P18	109	91	280	250	7.000

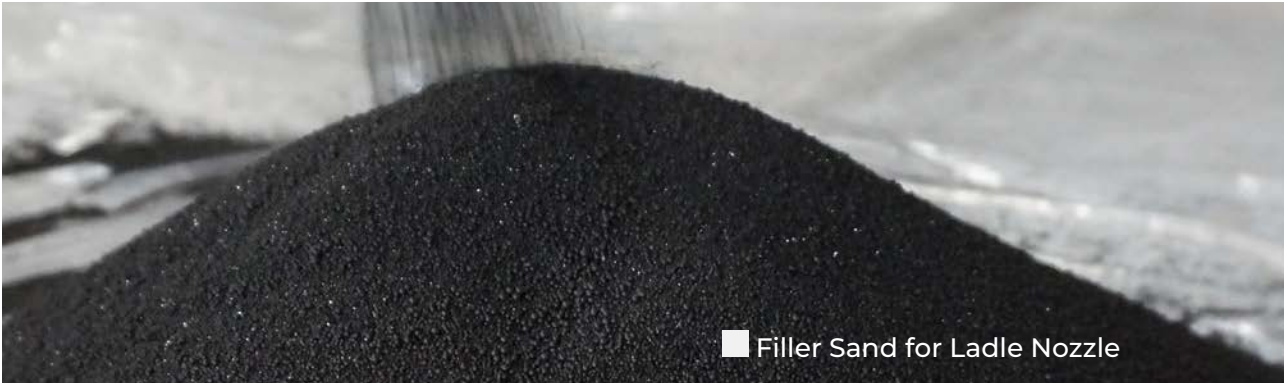


UNSHAPED REFRACTORIES

LADLE

UHSHAPED REFRACTORIES FOR LADLE

INDEX		Corundum self flow castable mix	Magnesia Ramming Mix	High Aluminium Castable Mix	Al2O3-MgO Mortar	Chrome Ladle Filler Sand
		SH-SF3-E	SH-MRM95	SH-LC70	SH-LMN	SH-LFSC30
Chemical Composition (%)	Al ₂ O ₃ ≥	90	-	70	50	SiO ₂ ≤ 20
	MgO+Cr ₂ O ₃ ≥	-	95	-	MgO ≥ 30	Fe ₂ O ₃ ≤ 22
	Cr ₂ O ₃ ≥	CaO ≤ 2.5	-	CaO ≤ 2.5	-	30
B.D. (g/cm³)	110°C x 24h ≤	3.0	2.95	2.70	-	3.15
CMOR (MPa)	110°C x 24h	12	6	6	1.5	≤ %0.5
	1500°C x 3h	15	10	12	5	-
C. C. S. (MPa)	110°C x 24h ≥	60	30	40	-	-
	1500°C x 3h	80	75	70	-	-
L.C.R (%)	1500°C x 3h ≥	1.0 +- 0	1.0 +- 0	± 1.0	-	-



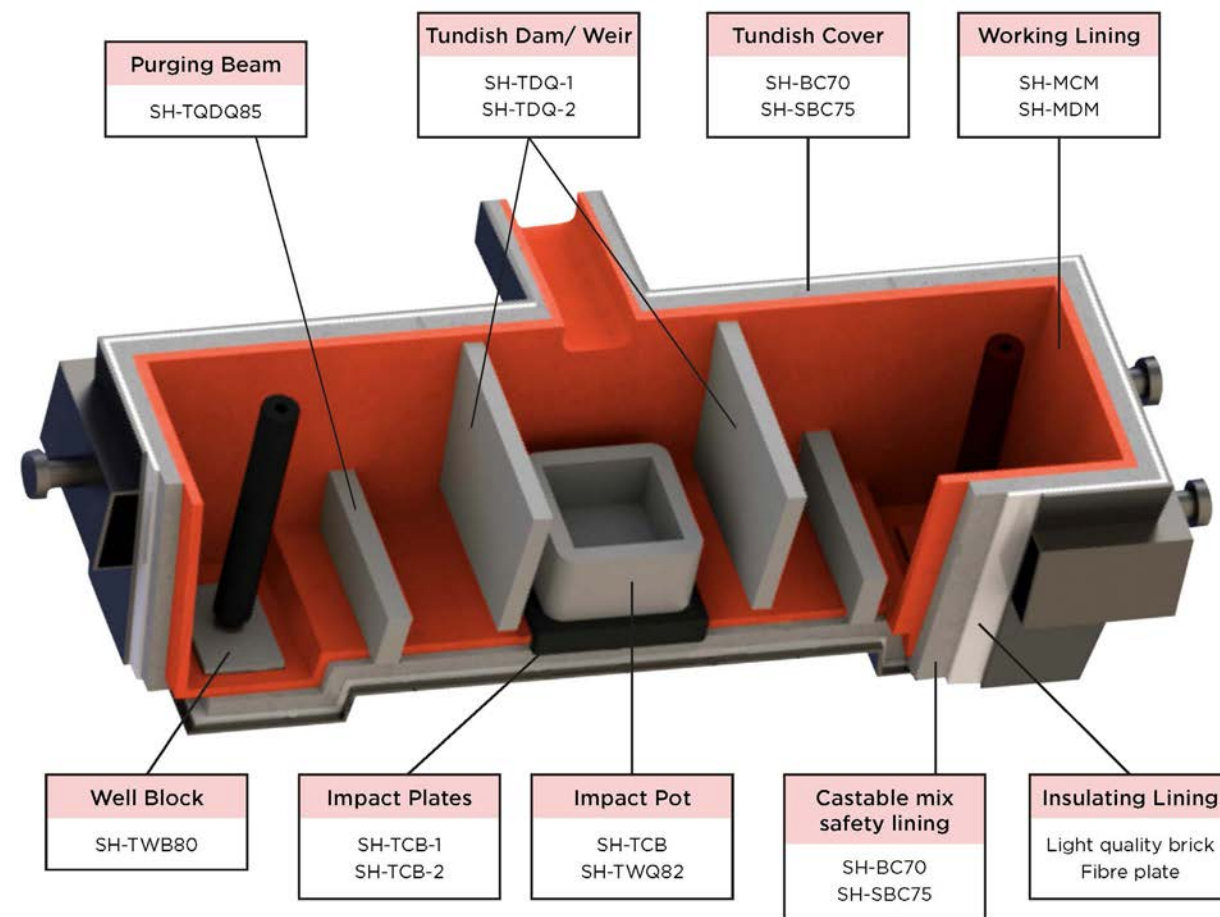
CASTABLE MIX FOR LADLE WORKING LINING

INDEX		SH-LC1	SH-LC2	SH-LC3
Chemical Composition (%)	Al ₂ O ₃ , MgO ≥	90	85	80
B.D. (g/cm³)	110°C x 24h ≤	3.15	2.85	2.85
CMOR (MPa)	110°C x 24h	3	4	4
	1500°C x 3h	6	8	8
C. C. S. (MPa)	110°C x 24h ≥	20	25	20
	1500°C x 3h	35	50	50
L.C.R (%)	1500°C x 3h ≥	± 0.5	± 0.5	± 0.5
Refractoriness °C		1750	1730	1730
Adding water in operation		4.5 - 5.5	5.0 - 6.0	5.0 - 6.0
Application		Large-sized refining ladle EAF ladle	Ladle lining and slag line of Small-medium sized	



REFRACTORIES

TUNDISH



TUNDISH DAM, IMPACT PLATE, IMPACT POT, NOZZLE WELL BLOCK

INDEX		Tundish Dam		Purging Beam	Impact plate		Impact Pot	Nozzle Well Block
		SH-TDQ1	SH-TDQ2	SH-TQDQ-85	SH-TCB1	SH-TCB2	SH-TWQ82	SH-TWB80
	Al ₂ O ₃ ≥	≤ 1.0	≥ 85	-	≥ 2.0	≥ 80	≤ 1.0	≥ 80
	MgO ≥	80	-	85	80	-	82	-
	Cr ₂ O ₃ ≥	2.5	SiO ₂ ≥ 2	-	1	-	3	SiO ₂ ≥ 2
	CaO	-	2.0	-	-	2.5	-	2.5
B.D (g/cm ³)	110°C x 24h ≤	2.90	3.10	2.45	2.85	2.85	2.90	2.85
C. C. S. (MPa)		55	80	15	40	60	55	50
CMOR (MPa)		12	15	5	10	12	12	8

COVERING AGENT FOR TUNDISH

APPLICATION		Carbide rice hull	CaO - SiO ₂	MgO	MgO	Al ₂ O ₃ - CaO
INDEX		SH-TFJ1	SH-TFJ2	SH-TFJ3	SH-TFJ4	SH-TFJ5
Chemical	CaO	-	45 - 42	18 - 12	1.5 ± 25	1.5 ± 35
	Al ₂ O ₃	-	< 4	< 1.5	46 ± 2.0	47 ± 2.0
	SiO ₂	≥ 50	18 - 25	8 - 10	4 ± 1.5	4 ± 1.5
	MgO	-	4 - 2	70 - 65	2 ± 14	< 5.0
		-	-	-	0.5 ± 2	0.5 ± 2
Melting Temperature °C		0	1480 - 1420	1580 - 1520	1500 - 1380	1466 - 1375
Melting Time (Min)		-	25 - 15	30 - 20	-	-
Size (mm)		≤ 3.0	5 - 1	5 - 1	100/10 - 1 μm	100/10 - 1 μm
Features and Application		Insulation function	Smelting high carbon steel	Smelting extra low carbon steel	Smelting killed steel	



UNSHAPED REFRACTORIES

TUNDISH

WORKING LINING, CASTABLE MIX FOR SAFETY LINING, TUNDISH COVER

INDEX		WORKING LINING		CASTABLE MIX FOR SAFETY LINING		TUNDISH COVER	
		SH-MCM	SH-MDM	SH-BC70	SH-SBC75	SH-BC70	SH-SBC75
Chemical Composition (%)	MgO ≥	90	70				
	Al ₂ O ₃ ≥			60	80	70	75
	CaO ≤		≥ 10	0.7	2		
	SiO ₂ ≤	2	6		5	15	10
B.D (g/cm ³)	110°C x 24h	≥ 2.45	≥ 1.8	2.55	2.9	2.3	2.5
Linear Change on reheating (%)		1.0- ~ 0	3.5- ~ 0	± 0.05	1.0- ~ 0	± 0.05	± 0.05
Thermal conductivity W./(m.k) (500°C)		≤ 1.5	≤ 0.8	≤ 1.0	≤ 1.0		



MAGNESIA DOLOMITE REFRACTORY BRICKS

AOD, VOD, GOR, CLU



Magnesia Dolomite Bricks FOR VOD AOD SOLUTIONS

Dolomite is a magnesium limestone (CaMgCO_3).

Calcined dolomite brick particles are united with the help of silicate binders and water. Highly pure dolomitic brick will be able to withstand physiochemical attacks and thermal shocks, guaranteeing long life and very high performance.

Magnesia dolomite brick is good for desulfurizing, dephosphorizing and removing non-metallic impurities from steel.

it is widely used in stainless steel making furnace such as AOD, VOD, GOR, CLU.

Part No.	CaO (%)	MgO (%)	Σ (F+A+S) %	Bulk Density (g/cm ³)	Cold crushing Strength (MPa)	Refractoriness Temperature °C
MG-10A	≥10	≥80	≤3.2	≤2.98	≥50	≥1680
MG-15A	≥15	≥75	≤3.2	≤2.98	≥50	≥1680
MG-20A	≥20	≥70	≤3.2	≤2.98	≥50	≥1680
MG-25A	≥25	≥65	≤3.2	≤2.95	≥50	≥1700
MG-30A	≥30	≥60	≤3.2	≤2.95	≥50	≥1700



FLOW CONTROL REFRACTORIES FOR LADLE AND TUNDISH



FLOW CONTROL REFRACTORIES FOR LADLE AND TUNDISH

SHENGHE REFRACTORIES focusing on research, production, development, and marketing for Ladle slide gate plate, Ladle nozzles, Well blocks, Purging plugs, Nozzle stuffing sand, Refractory castable, Slide gate Mechanisms etc, having provided high quality products and services to nearly 70 top-hundred global steel enterprises.

- Slide gate plates
- Tundish zirconia nozzles
- Slide gate system, tundish mechanism and its spare parts.
- Tundish flow control system





FLOW CONTROL SYSTEM REFRACTORIES

SLIDE GATE PLATES

SLIDE GATE PLATES

SH REFRACTORIES range of formulas including Alumina Carbon, Alumina Zirconia Carbon, Magnesita Spinel, etc. To suit different steelmaking conditions to achieve best service life.

Features:

- Excellent thermal stability
- High temperature strength
- Resistance to molten metal and slag
- Consistency in shape and size
- Ability to sustain mechanical treatment without detriment to the surface integrity

Chemical and Physical Properties	AL-C SLIDE GATE PLATE					AL-ZR-C SLIDE GATE PLATE		
	SH-SP70	SH-SP75	SH-SP80	SH-SP85	SH-SP86	SH-SP70	SH-HSP75	SH-HSP77
Al2O3,%	70	75	80	85	86	70	75	77
C,%	7	7	5	5	4	7	7	7
ZrO2,%	-	-	-	-	-	6	6	2.5
A.P, % max	10	10	10	10	7	10	10	10
B.D,g/cm3	2.8	2.9	2.9	3.0	2.95	3.00	3.05	2.90
C.C.S., MPa	65	70	100	100	100	110	115	100



LOW TEMPERATURE BURNT SLIDE PLATE

Tabular alumina, zirconia-containing material and spinel as major raw materials, adding in special metal, using phenolic resin as binder, being burned under low temperature to produce the products, Mainly used in small and medium-sized ladle.

Chemical and Physical Properties	LOW TEMPERATURE BURNT SLIDE GATE PLATE				
	SH-LTSP-70	SH-LTSP75	SH-LTSP80	SH-LTSP85	SH-LTSP86
Al2O3,% min	70	75	80	85	86
C,%	≥5	≥5	≥5	≥4	4
A.P,% max	10	10	10	8	7
B.D,g/cm	2.9	2.95	3.00	3.10	2.95
C.C.S., MPa ≥	90	90	100	120	100

UNBURNED SLIDE PLATE

No need to be burned, tar impregnated and distilled, simple processing. This product mainly used in small and medium-sized ladle.

Chemical and Physical Properties	AL-C SLIDE GATE PLATE				
	SH-USP70	SH-USP75	SH-USP80	SH-USP85	SH-USP86
Al2O3,% min	70	75	80	85	86
C,%	7	7	5	5	4
A.P,% max	10	10	8	10	7
B.D,g/cm	2.8	2.9	3.0	3.0	2.95
C.C.S., MPa ≥	65	70	100	100	100





FLOW CONTROL SYSTEM REFRACTORIES

TUNDISH NOZZLE

TUNDISH NOZZLE

Optional Solid ZrO2 type or Composite type Alumina+ZrO2 type nozzles can offer clients wider choice on achieving best performance in Tundish Metallurgical Flow Control.

Through consistent efforts on updating technology and automatic controlled equipment, following strict production management system. The chemical and physical properties of our nozzles have reached equivalent levels with US and EU. Overall performance has obtained high reputation from clients.

Tundish Nozzles:

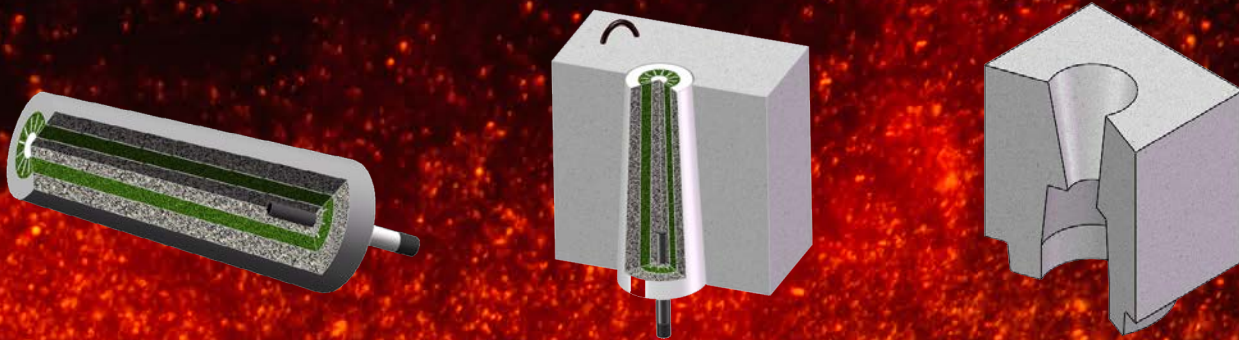
- 1. Solid Zirconia Nozzle for Metallurgy
- 2. Composite Alumina Carbon + Zirconia nozzle for Metallurgy
- 3. Fine Zirconia Ceramic for Power Metallurgy

Chemical and Physical Properties	ZIRCONIA METERING (SIZING) NOZZLE		OUTER COMPOSITE TUNDISH NOZZLE	
	GRADE-A1	GRADE-A2	ALUMINA	MAGNESIA
ZrO2,%	96	95	-	-
MgO,%	2.40 -3.3	2.4 -3.3	-	96
Al2O3,%	0.02	0.40	97	-
Fe2O3,%	0.02	0.04	0.1	0.7
SiO2,%	0.3	0.6	0.2	0.8
A.P,% max	2 - 4	5 - 7		
C.C.S., MPa	130	130		
B.D,g/cm3	4 - 5	2 - 5		



FUNCTIONAL REFRACTORIES

LF, AOD, VOD, GOR, CLU



WELL BLOCK, SEATING BLOCK, POROUS PLUG FOR LF, VOD, AOD SOLUTIONS

Porous Plug is a refractory used for Secondary Refining Equipment such as LF, AOD, VOD, etc. that plays a vital role in injecting Argon or Nitrogen gas into molten gas. The main functions are summarized below.

- 1. Accelerate the physical and chemical property of molten steel
- 2. Homogenization temperature and composition of molten steel
- 3. Enhance the purity of steel by floating non-metallic inclusion to the surface using gas

Ladle-tapping and stress induced by cold-gas blown into the Plug causes spalling and clogging problem in Purging Plug. We have strived to develop and improve the quality of Purging Plug for LF Ladle.

As a result, we developed Al₂O₃-Spinel product with stable Slit, minimum hot-deformation and excellent spalling resistance. Our Plug is designed with optimal Slit structure to prevent backflow of molten steel and to ensure sufficient gas flow. It is excellent in argon stirring and high in resistance against erosion.

Description		WELL BLOCK			SEATING BLOCK	
Part Number	Unit	STT-90G	STT-90Z	STT-90A	STZ-90	STZ-85
Al ₂ O ₃	%	≥90	90	90	90	85
Al ₂ O ₃ + Gr ₂ O ₃ + MgO	%	≥95			92	90
Al ₂ O ₃ + ZrO ₂ + MgO	%	≥	95			
Al ₂ O ₃ + MgO	%	≥		95		
Bulk Density	g/m ³	≥3.2	≥3.2	≥3.2	3.1	3.0
Linear Change	1650°C x 3h	-0.1, +0.2			±0.5	
Index of Permeability	0.4MPa/M ³ /h	15 - 40 m ³ /h, tailormade based on customer request.				



LONG SERVICE LIFE

HIGH CORROSION RESISTANCE

HIGH FUNCTIONAL TECHNOLOGY

ANTI-CLOGGING SYSTEM

STABILITY OF QUALITY PRODUCTS

SERVICE LIFE

Primary Smelting	Secondary Refining	Capacity	Temperature	Taping Time	End Product	Well Block Height (mm)	Number of heats achieved
BOF	LF	120T	1580 °C	30 Minutes	Mid Carbon Steel	450	55 Heats
BOF	LF	150T	1580 °C	40 Minutes	Mid Carbon Steel	450	35 Heats
EAF	LF	30T	1650 °C	40 Minutes	Mid Carbon Steel	400	45 Heats
EAF	LF+VD Consteel	50T	1700 °C	LF: 60 Minutes VD: 50 Minutes	Special Steel	420	20 Heats
Induction Furnace	LF	30T	1700 °C	LF: 120 Minutes VD: 100 Minutes	Special Steel	280	12 Heats



EXCELLENCE IN REFRACTORIES

CONSISTENTLY MEETING STEEL INDUSTRY'S REQUIREMENT





盛和耐材
SHENGHE REFRACTORIES



Plant 1. Magnesia Carbon Bricks, EBT Tap Hole Bricks
Manufacturing Unit



Plant 2. Monolithic & Castable, Ramming & Spray Mass
Manufacturing Unit

Contact us

YINGKOU SHENGHE REFRACTORIES
MANUFACTURING CO., LTD

No.162, DONGHUAN ROAD, DASHIQIAO,
YINGKOU, LIAONING PROVINCE , CHINA

Telephone: +86-186-24047780
Fax: +86-417-5875111
E-mail: sales@sh-refractories.com