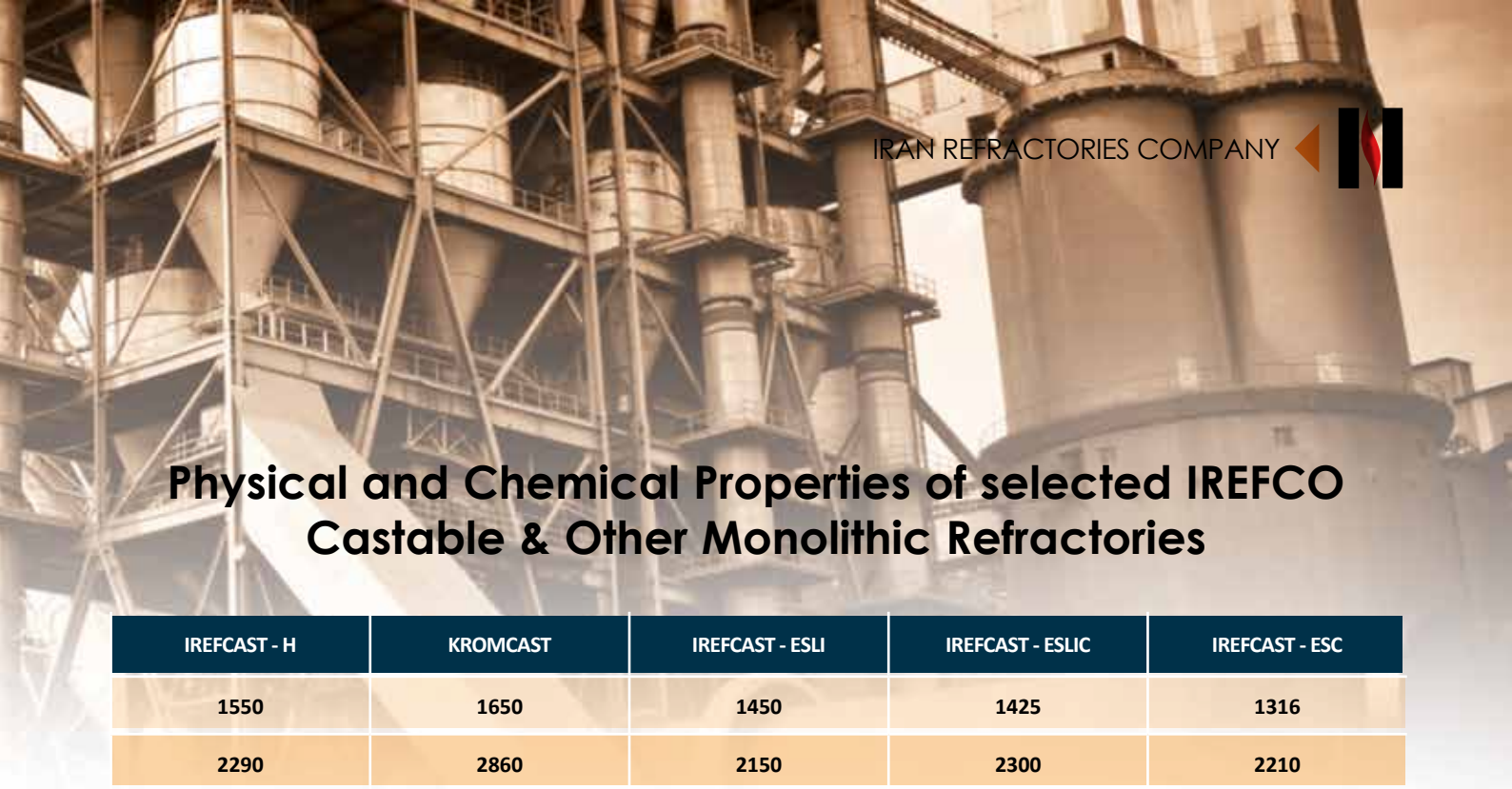
IRAN REFRACTORIES COMPANY

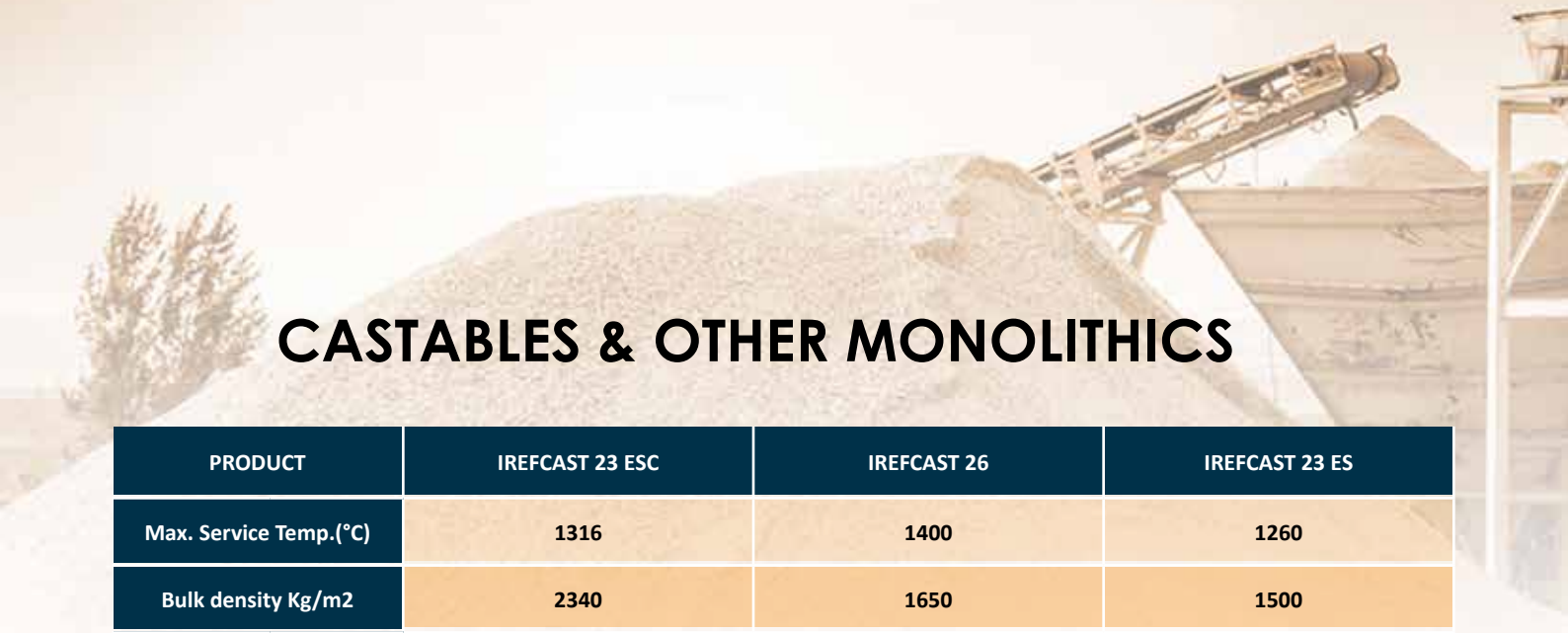
CASTABLES & OTHER MONOLITHICS

PRODUCT		KORACAST	KORACAST	ALMACAST	IREFCAST HB
Max. Service Temp.(°C)		1800	1750	1650	1600
Bulk density Kg/m2		2800	2730	2420	2290
(At 110°C) Cold Crushing Strength Kg/cm2 (At 110°C)		>700	>700	>350	>400
CHEMICAL. ANALYSIS	$A1_2O_3$ %	93-95	92-94	68-70	59-61
	Fe_20_3%			1.5-2	1.5-2.5
	Cao %	5-6	3-4	2-3	4-5
	SiO_2 %		1-1.5	21-23	28-30
	Cr_2O_3 %				
	MgO %				
DESCRIPTION		Korundom Base Castable With High purity calcium - aluminate cement. High Mechanical Strength. Ustra Abrasion Resistant Excellent thermal shock resistance. Chemical Corrosion resistance. High Temperature application Ultra Low Iron.	Korundom Base Castable Vith High purity calcium aluminate cement. High Mechanical Strength. Ultra Abrasion Resistant. Excellent thermal shock resistance. Chemical Corrosion resistance. High Temperature application. Ultra Low Iron.	Korundom Base Castable With High purity calcium-aluminate cement High Mechanical Strength. High Abrasion Resistant. Excellent thermal shockresistance. Chemical Corrosionresistance High Temperature application. Low Iron.	High Alumina dense Castable with High purity calcium -aluminate cement. High Mechanical Strength. High Abrasion Resistant High thermal shock resistance. High Temperature application. Low Iron.
APPLICATION AREA		Kiln outlet Cooler Hot air duct inlet Satellite cooler Calciner General use	Burner Kiln outlet Cooler inlet area Hot air duct inlet Satellite cooler Dryer Combustion chamber General use	Kiln outlet Cooler inlet area Hot air duct inlet Dryer Calciner Combustion chamber General use	Cooler inlet area Hot air duct inlet Dryer Calciner Combustion chamber General use



Physical and Chemical Properties of selected IREFCO Castable & Other Monolithic Refractories

IREFCAST - H	KROMCAST	IREFCAST - ESLI	IREFCAST - ESLIC	IREFCAST - ESC
1550	1650	1450	1425	1316
2290	2860	2150	2300	2210
>350	>450	>400	>300	>300
49-51	37-40	46-50	44-47	43-46
1.5-2	10-12	2-3	2.5-2.5	6-8
4-5	5-6	9-11	9-11	9-11
39-41	2.5-3.5	31-34	35-37	32-34
11-13	26-29			
High Alumina dense Castable with High purity calcium - aluminate cement. High Mechanical Strength. High Abrasion Resistant. High thermal shock resistance. High Temperature application. Low Iron.	chromic Oxide base Castable with High purity calcium - aluminate cement. High Mechanical Strength. Chemical Corrosion resistance. High Abrasion Resistant High thermal shock resistance. High Temperature application.	Fireclay base, castable with low iron hydraulic binder Excellent strength throughout its entire temperature range High resistance to Mechanical impact and abrasion. Light Handed Installation Low Iron	Fireclay base, castable with low iron hydraulic binder. Excellent strength throughout its entire temperature range Excellent resistance to Mechanical impact and abrasion. Light Handed Installation. Low Iron	Fireclay base castable with hydraulic binder. High strength throughout its entire temperature range. High resistance to Mechanical impact and abrasion. Light Handed Installation.
Cooler middle area Hot air duct inlet Dryer Calciner Combustion chamber General use	Cooler Hot air duct inlet Dryer Calciner Combustion chamber Riser ducts General use	Cooler ceiling Conical part of cyclones cyclone ceiling Hot air duct Combustion chamber Riser ducts General use	Kiln inlet with high alkalies presence Cooler Hot air duct General use	Conical part of cyclones cyclone ceiling Hot air duct Combustion chamber Riser ducts General use



CASTABLES & OTHER MONOLITHICS

PRODUCT		IREFCAST 23 ESC	IREFCAST 26	IREFCAST 23 ES
Max. Service Temp.(°C)		1316	1400	1260
Bulk density Kg/m2		2340	1650	1500
(At 110°C) Cold Crushing Strength Kg/cm2 (At 110°C)		>350	>70	>50
CHEMICAL. ANALYSIS	$A1_2O_3$ %	41-44	42-46	37-40
	Fe_2O_3%	7-8	4-6	5-7
	Cao %	10-12	14-16	10-13
	SiO_2, %	32-34	30-33	36-40
	Cr_2O_3 %	-	-	-
	MgO %	-	-	-
DESCRIPTION		Coarse Fireclay base, castable with hydraulic binder. High strength throughout its entire temperature range High resistance to Mechanical impact and abrasion. Low shrinkage, goos resistance to spalling & thermal cycling	Light Weight Gunning Mix High Mechanical Strength Low Thermal Conductivity Low Water Absorbtion High Temperature Application Excellint volum stability, May be cast or gunned in place, Fast Erection	Light Weight CastableIntermediate Strength & Insulating Value - Hydraulic Bonded Castable. Low Thermal Conductivity Light Handed Installation High Temperature Application
APPLICATION AREA		Kiln inlet Cooler Hot air duct General use	Inspection doors in high temperature zones of preheater and cooler Hot repaires in preheaterand cooler Backlining insulating refractory General use	Inspection doors in midume temperature zones of preheater and cooler Backlining insulating refractory General use

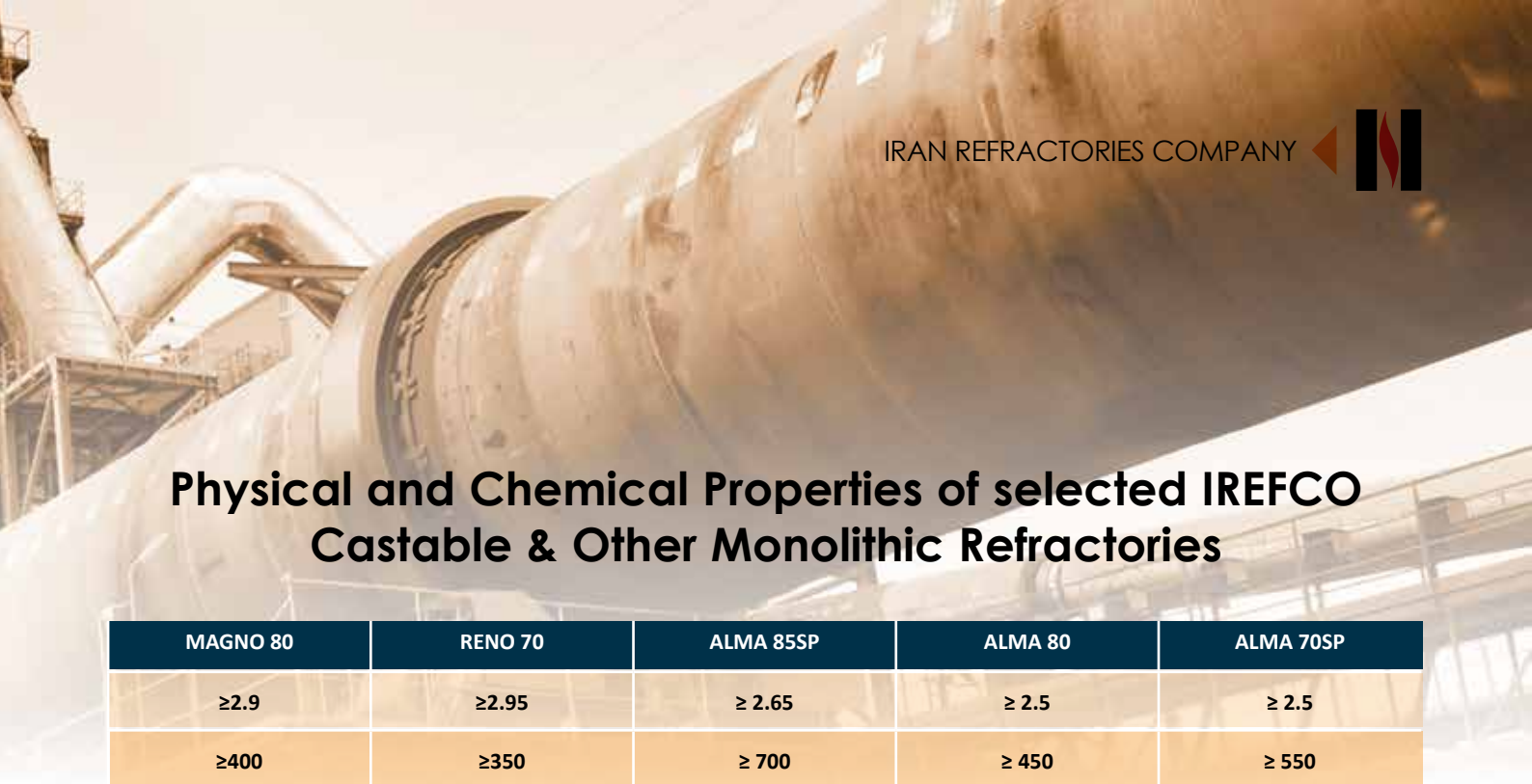
Physical and Chemical Properties of selected IREFCO Castable & Other Monolithic Refractories

IREFCAST 22	KROMCAST 22 (LI)	IREFCAST 23ES (LI)	MAGNESTTE MORTAR	MAGNOBOND
1200	1200	1260	-	-
1100	1100	1500	-	-
>40	>40	>50	-	-
32-36	33-37	39-43	2-3	2-3
3-6	1.5-2	1.5-2	2.5-3.5	2.5-3.5
12-14	12-14	10-13	4-6	5-6
38-41	39-42	38-43	13-16	10-13
-	-	-	-	-
-	-	-	72-74	67-70
Ultra light Weight Castable High insulating value, good refractoriness, good strength, excellent resistance to thermal shock. Very Low Thermal Conductivity Light Handed Installation	Ultra light Weight Castable,Low Iron High insulating value, good refractoriness, good strength, excellent resistance to thermal shock. Very Low Thermal Conductivity Light Handed Installation	Ultra light Weight Castable, Low Iron High insulating value, good refractoriness, good strength, excellent resistance to thermal shock. Very Low Thermal Conductivity Light Handed Installation	Dry heat-setting magnesite mortar. suited for laying all types of basic brick in applications where a heat-setting basic mortar is required. Chemical Corrosion Resistance High Temperature Application	Extremely refractory air setting mortar with high magnesia content May be used successfully with other types of basic brick in all applications where a chemically basic mortar is required. Dry mortar having smooth working properties when mixed with water. High Temperature Application
Inspection doors in low temperature zones of preheater and cooler Backlining high insulating refractory General use	Inspection doors in low temperature zones of high alkali content in preheater and cooler Backlining high insulating and alkaly resist refractory 1 General use	Inspection doors in low temperature zoneof high alkali content in preheater and cooler Backlining high insulating and | alkaly resist refractor General use	Heat set mortar for rotary kiln bricklining	Air set mortar for burning and transitin zone of rotary Kiln bricklining Joint filling of damaged magnesite bricks

IRAN REFRACTORIES COMPANY

BRICKS

PRODUCT		RESPIN 85	RESPIN 92	MAGNO 80CF
Bulk density		≥2.8	≥2.9	≥2.8
Cold Crushing Strength		≥400	≥400	≥450
Modulus of Rupture		≥90	≥80	≥85
Apparent porosity %		<20	<20	<18
Refractoriness under load T05		>1650	>1750	>1650
CHEMICAL ANALYSIS	Al_2O_3 %	10 – 13	10 – 13	10 – 13
	Fe_2O_3%	<1.5	<1.5	3-5
	Cao %	<2	<2	<2
	SiO_2, %	<1.5	<1.5	<1.5
	Cr_2O_3 %	-	-	-
	MgO %	83 - 86	83 - 86	80 - 84
DESCRIPTION		Magnesia- Spinel brick with high pure dead burned magnesia and synthetic spinel. Chrome free. High Mechanical Strength, Excelent resistance to thermomechanical shoks and chemical attackts. High Temperature Application	Magnesia- Spinel brick with high pure dead burned magnesia and synthetic spinel. Chrome free. High Mechanical Strength, Excelent resistance to thermomechanical shoks and chemical attackts. High Temperature Application	Magnesia- Spinel brick with high pure dead burned magnesia and synthetic spinel. High Iron content, Chrome free. High Mechanical Strength, Excelent resistance to thermomechanical shoks and chemical attackts. High Temperature Application, High Coating adherence.
APPLICATION AREA Burning zone of cement rotary kiln with high temperature operation		Lower and upeer transition zone of cement rotary kiln Burning zone of cement rotary kiln with high chemical attaks	Lower and upeer transition zone of cement rotary kiln Suitable for cement rotary kiln with high temperature operation No hazardous for environment, non toxic	Burning zone of cement rotary kiln



Physical and Chemical Properties of selected IREFCO Castable & Other Monolithic Refractories

MAGNO 80	RENO 70	ALMA 85SP	ALMA 80	ALMA 70SP
≥2.9	≥2.95	≥ 2.65	≥ 2.5	≥ 2.5
≥400	≥350	≥ 700	≥ 450	≥ 550
>40	>30	>200	>80	>180
<19	<19	<20	<22	<20
>1450	>1500	>1450	>1500	>1400
_	>68	>83	>78	>68
4.5-6.5	6-8	<2	<3	<2.5
<3	<2	_	_	_
<3	<3	<10	<14	<24
4-6	< 15	_	_	_
78-82	>65	_	_	_
Magnesia- Chrome brick with rich Iron dead burned magnesia (Alpine). Good Mechanical Strength, Excelent resistance to thermomechanical shoks&chemical attackts. Excelent coating adherence.	Magnesia- Chrome semi-direct bonded brick with high pure dead burned magnesia. High Mechanical Strength, Excelent resistance to thermomechanical shoks and chemical attackts.	High alumina, Phosphate bonded brick. High Mechanical Strength Ultra Abrasion resistant Excellent thermal shock resistance Chemical Corrosion Resistance, Low Iron. High Temperature Application	High alumina brick. Based on Rotary Bauxite. High Mechanical Strength Ultra Abrasion resistant Excellent thermal shock resistance Chemical Corrosion Resistance High Temperature Application	High alumina, Phosphate bonded brick. High Mechanical Strength Ultra Abrasion resistant High thermal shock resistance Chemical Corrosion Resistance, Low Iron
Burning zone of cement rotary kiln	Lower and upper transition zone of cement rotary kilns with high chemical attaks Cooler inlet area Hot air duct inlet Calciner	Outlet zone of cement rotary kiln Cooler inlet area Hot air duct inlet Calciner	Safety zone of cement rotary kilns with high temperature operation Cooler inlet area Hot air duct inlet Calciner	Safety zone of cement rotary kilns with high abrasive conditions

IRAN REFRACTORIES COMPANY

BRICKS

PRODUCT		ALMA 70H	ALMA 70AR	ALMA 70
Bulk density g/cm3		>2.4	>2.5	>2.3
Cold Srushing Strenght Kg/cm2		>500	>550	>400
Modulus of Rupture Kg/cm2		>70	>90	>70
Apparent porpsity %		<17	<18	<21
Refractoriness under load T05 (°C)		>1450	>1400	>1425
CHEMICAL. ANALYSIS	A12O3 %	>68	>64	>69
	Fe_2O_3%	<2.5	<2	<3
	Cao %	>1.5	<1	<1.5
	SiO_2, %	<24	<28	<23
	Cr_2O_3 %	-	-	-
	MgO %	-	-	-
DESCRIPTION		High alumina brick. Based on Rotary Bauxite. High Mechanical Strength. High Abrasion resistant. Low open porosity. Excellent thermal shock resistance Chemical Corrosion Resistance High Temperature Application	High alumina Phosphate bonded brick. Based on Rotary Bauxite and Sic. High Mechanical Strength Ultra Abrasion resistant. Low open porosity. Excellent thermal shock resistance Chemical Corrosion Resistance, low iron.	High alumina brick. Based on Rotary Bauxite. High Mechanical Strength. High Abrasion resistant. High thermal shock resistance High Temperature Application
APPLICATION AREA		Safety zone of cement rotary kilns with high abrasive conditions Cooler inlet area Hot air duct inlet Calciner	Safety zone of cement rotary kilns with high alkaly and sulfate attaks conditions Calciner	Safety zone of cement rotary kilns Gasification Reactor

Physical and Chemical Properties of selected IREFCO Castable & Other Monolithic Refractories

ALMA 60	ALMA 50	SEMIROM	SEMITHERM 35AR	GHESHLAGH
>2.35	>2.3	>2.2	>2.18	>2
>350	>400	>400	>420	>400
>70	>80	>85	>80	>85
<19	<17	<17	<12	<17
>1360	>1360	>1340	>1240	>1280
>58	>47	>40	<36	>42
<3	<2.5	<2	<1.5	<3
<2	-	-	-	-
<32	<49	<54	>57	<38
-	-	-	-	-
-	-	-	-	-
High alumina brick. Based on Bauxite. High Mechanical Strength High Abrasion resistant. High thermal shock resistance High TemperatureApplication	High alumina brick. Based on Bauxite. High Mechanical Strength. High Abrasion resistant. High thermal shock resistance High Temperature Application	Super duty Fireclay Brick High Mechanical Strength High Temperature Application low iron	Fireclay Silics base Bric High abration Strength Excellent alkali Resistance. no coating adhearenc Excellent Chemical Corrosion Resistance	High duty Fireclay Brick High Mechanical Strength High abration Strength.
Safety zone boarder of cement rotary kilns with normal operation	Safety zone boarder of cement rotary kilns with normal operation	Calcining zone of cement rotary kilns with normal operation Cyclones Riser ducts Tertiary air duct Cooler walls and ceiling General use	Calcining zone of cement rotary kilns with high alkaly and sulfate attaks conditions Upper parts of preheater	Tertiary air duct Upper parts of preheater Cooler walls General use

IRAN REFRACTORIES COMPANY

STANDARD SHAPE BRICKSFOR CEMENT ROTARY KILN

ISO STANDARD SHAPES (A SERIES)

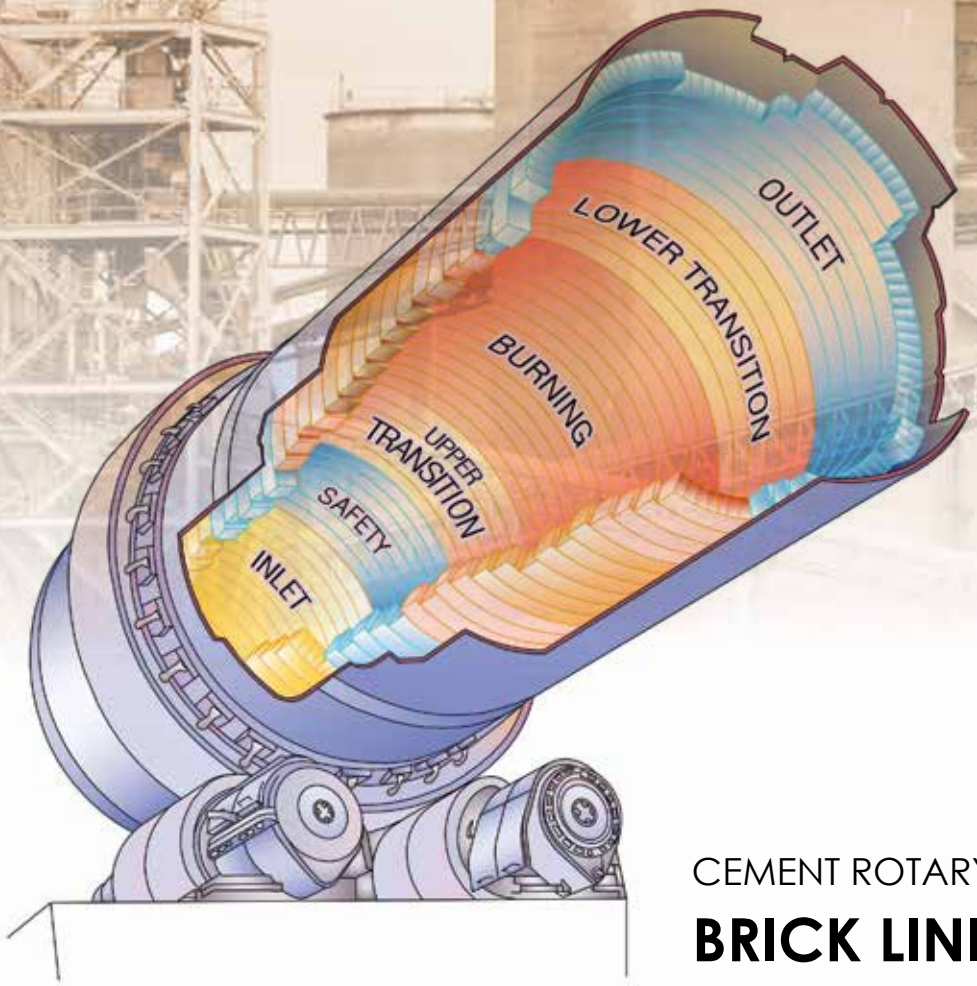
2114	103	91.3	114	198	220	103	82	200	198
3114	103	95.2	114	198	320	103	89	200	198
4114	103	97.1	114	198	420	103	92.5	200	198
6114	103	99	114	198	620	103	96.2	200	198
8114	103	100	114	198	820	103	97.8	200	198
4114 2/3	68.7	62.8	114	198	420 2/3	68.7	58.2	200	198
4114 3/4	77.3	71.4	114	198	820 3/4	77.3	72.1	200	198
215	103	87.6	150	198	2225	103	79.8	225	198
315	103	92.7	150	198	3225	103	87.5	225	198
415	103	95.3	150	198	4225	103	91.4	225	198
615	103	97.9	150	198	6225	103	95.3	225	198
815	103	99	150	198	8225	103	97.2	225	198
415 2/3	68.7	61	150	198	4225 2/3	68.7	57.1	225	198
415 3/4	77.3	69.6	150	198	8225 3/4	77.3	71.5	225	198
218	103	84.0	180	198	225	103	77.3	250	198
318	103	90.5	180	198	325	103	85.8	250	198
418	103	93.5	180	198	425	103	90	250	198
618	103	97	180	198	625	103	94.5	250	198
818	103	98.3	180	198	825	103	96.5	250	198
418 2/3	68.7	59.2	180	198	425 2/3	68.7	55.7	250	198
418 3/4	77.3	67.8	180	198	825 3/4	77.3	70.8	250	198

ISO STANDARD SHAPES (VZD SERIES)

218 B	**78**	**65**	**180**	**198**
318 B	77	67	180	198
418 B	**75**	**68**	**180**	**198**
618 B	74	69	180	198
418 4/5 B	**70**	**65**	**180**	**198**
418 5/4 B	85	75	180	198
120 B	**88**	**55**	**200**	**198**
220 B	78	65	200	198
320 B	**77**	**67**	**200**	**198**
420 B	75	68	200	198
620 B	**74**	**69**	**200**	**198**
820 B			200	198
420 4/5 B	**70**	**65**	**200**	**198**
820 5/4 B	85	75	200	198

2225 B	**78**	**65**	**225**	**198**
3225 B	76.5	66.5	225	198
4225 B	**75**	**68**	**225**	**198**
6225 B	74	69	225	198
8225 B	**73.5**	**69.5**	**225**	**198**
4225 4/5 B	70	65	225	198
8225 5/4 B	**85**	**75**	**225**	**198**
225 B	80.8	62.1	250	198
325 B	**78**	**65**	**250**	**198**
425 B	76.5	66.5	250	198
625 B	**74.5**	**68.5**	**250**	**198**
825 B	73.8	69.3	250	198
425 4/5 B	**70**	**65**	**250**	**198**
825 5/4 B	85	75	250	198

IRAN REFRACTORIES COMPANY



CEMENT ROTARY KILN

BRICK LINING

OUTLET	ALMA 85SP / ALUMO 70 LI
LOWER TRANSITION	RESPIN 85 / RENO 70
BURNING ZONE	MAGNO 80 / RESPIN 85
UPPER TRANSITION	RESPIN 85
SAFETY ZONE	ALMA 70 / ALMA 70SP ALMA 70H / ALUMO / ALUMO 60 LI
INLET	SEMIROM / SEMITHERM 35AR