

# HAZNEDAR DURER

R E F R A C T O R I E S

---

a member of Calderys



Haznedar Durer is a global provider of refractories, supplying high-grade basic and acidic bricks, as well as alumina silicate-based monolithics and magnesium oxide products to the iron & steel, cement and petrochemical industries.

The company provides a complete refractory offering from product supply to technical and engineering expertise including supervision and installation for a wide range of customers over five continents.

Haznedar Durer was formed from the merger of Haznedar Refractories and Durer Monolithics. It is owned at 60% by Calderys (<https://www.calderys.com/>) - leader in high temperatures solutions and a member of Imerys (world leader in mineral-based specialties for industry).

By joining forces, Haznedar Durer and Calderys are able to better respond to the ever evolving needs of domestic and international markets through a comprehensive offering, a stable supply chain, high product knowledge, operational excellence, constant quality performance and a worldwide sales network.



# CONTENT

06	.....	<b>Haznedar Durer Timeline</b>	51	.....	<b>Standard Brick Shapes and Measurements</b>
08	.....	<b>Main Production Program</b>	53	.....	Rectangular Shapes
09	.....	<b>Application Areas &amp; Products</b>	54	.....	End Arch Bricks
10	.....	Blast Furnace Lining Concept	57	.....	Side Arch Bricks
12	.....	Hot Blast Stove Lining Concept	59	.....	Large End Arch Bricks
14	.....	Pig Iron Transport Vessel Torpedo Car Lining Concept	61	.....	Ladle Bricks
16	.....	BOF Converter Mag-Carbon Lining Concept	65	.....	Arc Furnace Bricks
18	.....	EAF Mag-Carbon Lining Concept	68	.....	Rotary Kiln Bricks
20	.....	EAF Roof Brick Lining Concept	74	.....	Anchor Bricks
21	.....	EAF Roof Precast Lining Concept	75	.....	Skew Bricks
22	.....	Ladle Dolomite Lining Concept	76	.....	Brenner Bricks Precast Shapes
24	.....	Ladle Mag-Carbon Lining Concept	<b>78</b>	.....	<b>Monolithics &amp; Castables</b>
26	.....	Continuous Casting System Tundish Lining Concept	80	.....	Regular Dense Castables
28	.....	Reheat Furnaces Walking Beam	82	.....	New Generation Regular Dense Castables
30	.....	Reheat Furnaces Pusher Type	84	.....	Low Cement Dense Castables
32	.....	Glass Melting Tank and Regenerator Lining Concept	86	.....	Low Cement Dense Vibrating Castables
34	.....	Annular Shaft Kiln Lime Lining Concept	88	.....	Ultra Low Cement Dense Vibrating Castables
35	.....	Melting-Holding Furnace Aluminium Lining Concept	90	.....	Self-Flowing Dense Castables
36	.....	Rotary Kiln Plants Cement Industry Lining Concept	92	.....	Regular Gunning Mixes
38	.....	Incinerator Rotary Kiln & Secondary Combustion Chamber	92	.....	Abrasion Resistant Trowel Mixes
40	.....	Combustion Chamber Vertical Type Lining Concept	94	.....	Low Cement Gunning Mixes
42	.....	Combustion Chamber Air Cooled Lining Concept	96	.....	Insulating Castables and Insulating Gunning Mixes
<b>43</b>	.....	<b>Product Groups &amp; Qualities</b>	98	.....	Ramming and Plastic Materials
<b>43</b>	.....	<b>Bricks</b>	100	.....	Magnesia Mixes
44	.....	Alumina Bricks	102	.....	Refractory Mortars
44	.....	Andalusite and Mullite Basis Bricks	104	.....	Wet Refractory Mortars
45	.....	High Alumina Bricks	106	.....	Alumina Refractory Mortars
45	.....	Abrasion and Alkali Resistant Bricks	106	.....	Basic Refractory Mortars
46	.....	Corundum Basis Super Alumina Bricks	106	.....	Dolomite Mixes
46	.....	Insulation Bricks			
47	.....	Fired Magnesite Bricks			
47	.....	Fired Chrome-Magnesite Bricks			
48	.....	Resin Bonded Magnesia-Carbon Bricks			
49	.....	Resin Bonded Alumina-Magnesia Carbon Bricks			
49	.....	Resin Bonded Dolomite Bricks			

## HAZNEDAR DURER'S TIMELINE

### 1929

Haznedar Refractories is founded in Istanbul, Turkey with the goal of manufacturing building bricks & tiles for the construction industry.



### 1933

Haznedar Refractories commences the production of fireclay refractories for furnace linings in parallel to the blooming industrialization period in Turkey.



### 1952

Haznedar Refractories is acquired by its current stakeholders and focuses on the production of high-quality refractory bricks to service the growing Turkish industry.



### 1967

Haznedar Refractories' Bahçelievler plant undergoes modernization to answer the needs of its expanding customer base.

### 1977

Haznedar's sister company Durer Monolithics is established for the specialized production of refractory monolithics and castables.



### 2000

Haznedar and Durer invest on the construction of two new plants with a total manufacturing capacity over 125.000 tons a year.



### 2001

The new plants start production in Çerkezköy.

### 2003

Haznedar Group becomes the first Turkish refractories producer to make an overseas investment and acquires a dolomite plant and its adjacent mines in Gostivar, North Macedonia. Vardar Dolomit is born.



### 2013 – 2019

A new growth policy on exports is put into effect and around 50% of Haznedar's production gets directed to international customers.



### 2020

Haznedar Group, composed of Haznedar Refractories, Durer Monolithics and Vardar Dolomit, is dissolved into separate entities.

Haznedar Refractories and Durer Monolithics have merged under one single organization, namely Haznedar Durer Refractories. Haznedar Durer has joined forces with Caldeyrs to continue to be the strongest solution partner of industries working with extreme temperatures and conditions with its high-quality refractory bricks and monolithic products.

Vardar Dolomit remains an independent entity distributing its products worldwide. Haznedar Durer keeps the exclusive rights for the distribution of Vardar's products in the Turkish market.



## MAIN PRODUCTION PROGRAM

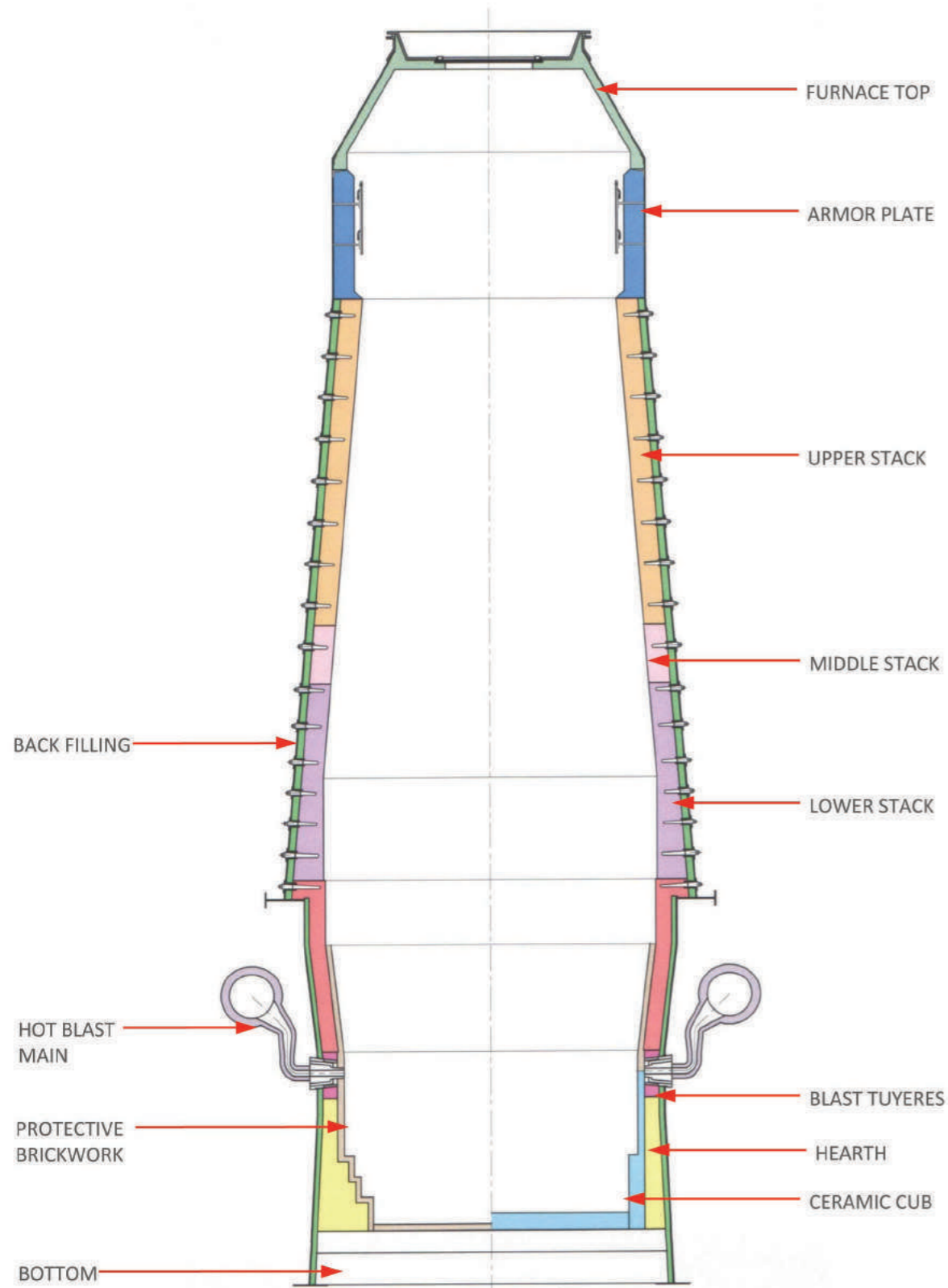


- Acid Proof Bricks
- Chamotte Based (Fireclay) Bricks 25-46 %  $\text{Al}_2\text{O}_3$
- High Alumina Group 1 Products 46-50 %  $\text{Al}_2\text{O}_3$
- High Alumina Group 2 Products 50-90 %  $\text{Al}_2\text{O}_3$
- High Alumina Group 3 Products 90-99%  $\text{Al}_2\text{O}_3$
- Special Abrasion and Alkali Resistance Bricks
- Chemical Bonded High Alumina Bricks 75-90 %  $\text{Al}_2\text{O}_3$
- Chemical Bonded High Alumina Bricks With Chromic Oxide (5-9%)
- Mullite & Corundum and Sillimanite Bricks
- Resin Bonded Alumina Carbon Bricks 60-90 %  $\text{Al}_2\text{O}_3$
- Resin Bonded Alumina-Silicon Carbide-Carbon Bricks
- Resin Bonded Alumina Magnesia Spinel Carbon Bricks
- Resin Bonded Magnesia Carbon Bricks
- Resin Bonded Dolomite Bricks
- Fired Magnesia Bricks
- Fired Magnesia Chrome Bricks
- Spinel Bricks
- Special Inquires Such As Bilicon Carbide and Zircon Containing Products
- Insulating Bricks up To 1400°C Service Temperature
- Mortars 30-95 %  $\text{Al}_2\text{O}_3$
- Insulation and Acid Proof Mortars
- Air Setting Mortars



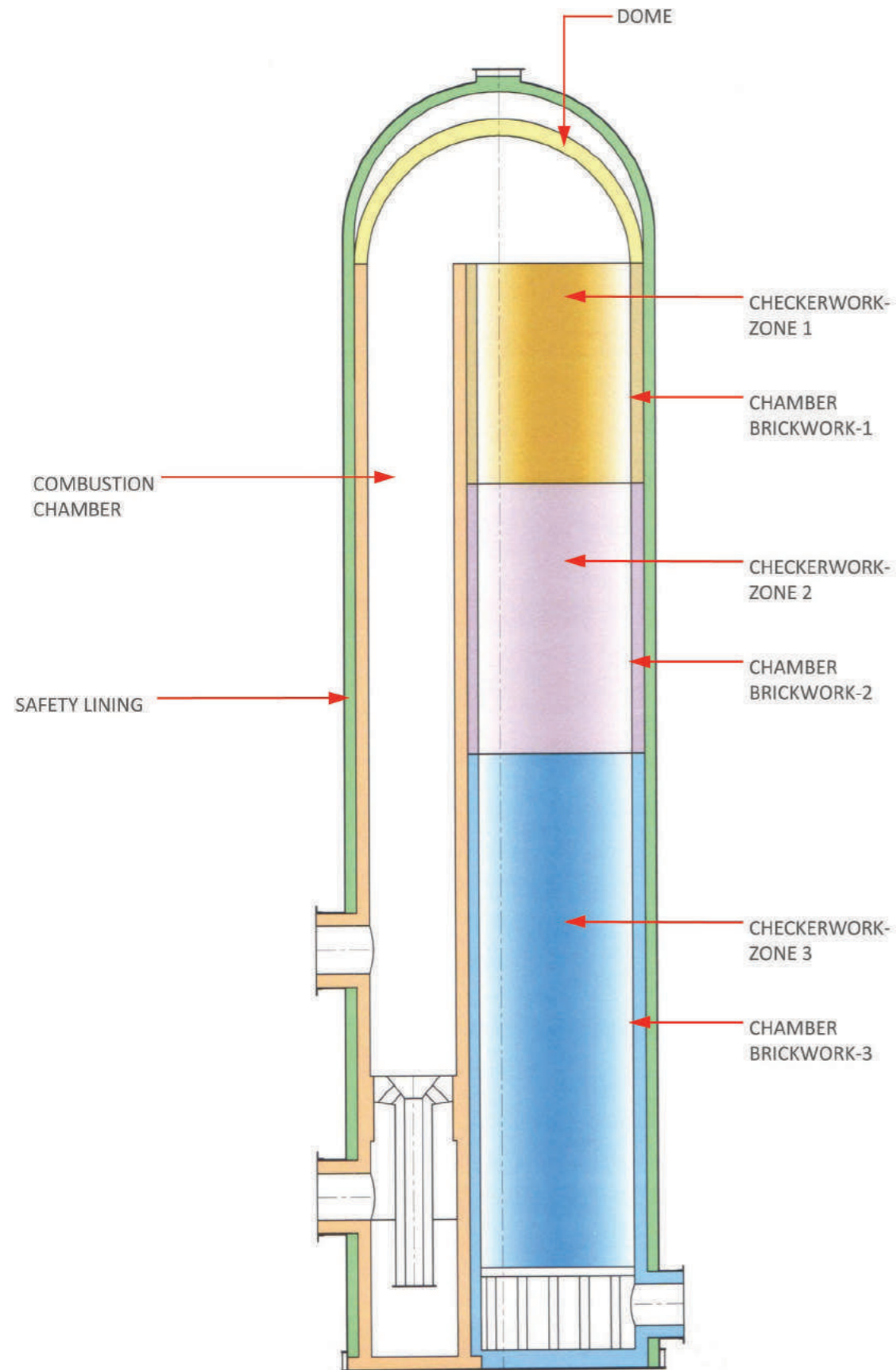
## APPLICATION AREAS & PRODUCTS

# BLAST FURNACE LINING CONCEPT



Application Area	Product Name	
	Bricks	Mixes
FURNACE TOP		GUNDUR LC 750 HS VIBRADUR MC 844
ARMOR PLATE	HAZAL C 45/L HAZAL C 42/L	VIBRADUR 60 A VIBRADUR MC 844
UPPER STACK	HAZAL ASC 30 ... HAZAL ASC 15 HAZAL FM 75 HAZAL T2AR	VIBRADUR 65 AK VIBRADUR 60 A
MIDDLE STACK	HAZAL ASC 30 ... HAZAL ASC 15 HAZAL FM 75 HAZAL T2AR	VIBRADUR 65 AK VIBRADUR 60 A
LOWER STACK	KOREX 95 HAZAL FM 75 HAZAL T2AR	
BLAST TUYERES	HAZAL S 65 KOREX 65 CR 30	
HOT BLAST MAIN		FLODUR M 80 U ULTRADUR 60 A
HEARTH	HAZAL FM 75 KOREX 65 CR 30	
BOTTOM	HAZAL FM 75 KOREX 65 CR 30	
BACK FILLING		VIBRADUR TCA 87/10 SiC VIBRADUR MC 750
PROTECTIVE BRICKWORK	HAZAL C 30	
CERAMIC CUB	KOREX 65 CR 30 HAZAL FM 75	

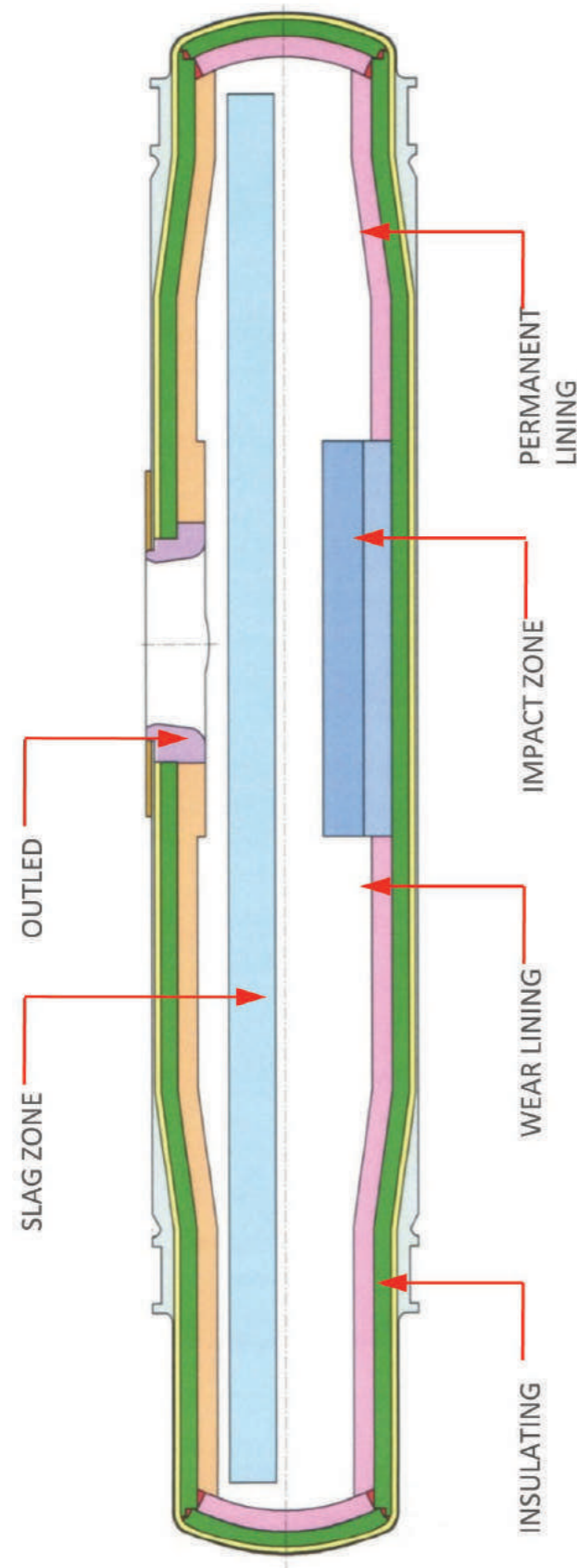
# HOT BLAST STOVE LINING CONCEPT



Application Area	Product Name	
	Bricks	Mixes
COMBUSTION CHAMBER	HAZAL FM 75 HAZAL S 65 HAZAL C 50/L	ULTRADUR 65 A VIBRADUR 60 A
DOME	HAZAL FM 75 HAZAL S 65 HAZAL C 50/L	
CHECKERWORK-ZONE 1	HAZAL S 65 HAZAL S 55 HAZAL C 50/L	
CHECKERWORK-ZONE 2	HAZAL S 55 HAZAL C 50/L HAZAL C 45/L...HAZAL C 42/L	
CHECKERWORK-ZONE 3	HAZAL C 45/L...HAZAL C 42/L HAZAL C 45	
CHECKER CHAMBER BRICKWORK-1	HAZAL S 65 HAZAL S 55 HAZAL C 45/L	
CHECKER CHAMBER BRICKWORK-2	HAZAL S 55 HAZAL C 50/L HAZAL C 45/L...HAZAL C 42/L	
CHECKER CHAMBER BRICKWORK-3	HAZAL C 45/L...HAZAL C 42/L HAZAL C 45	
INSULATION	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,00 HAZOLIT SIZ 0,6	

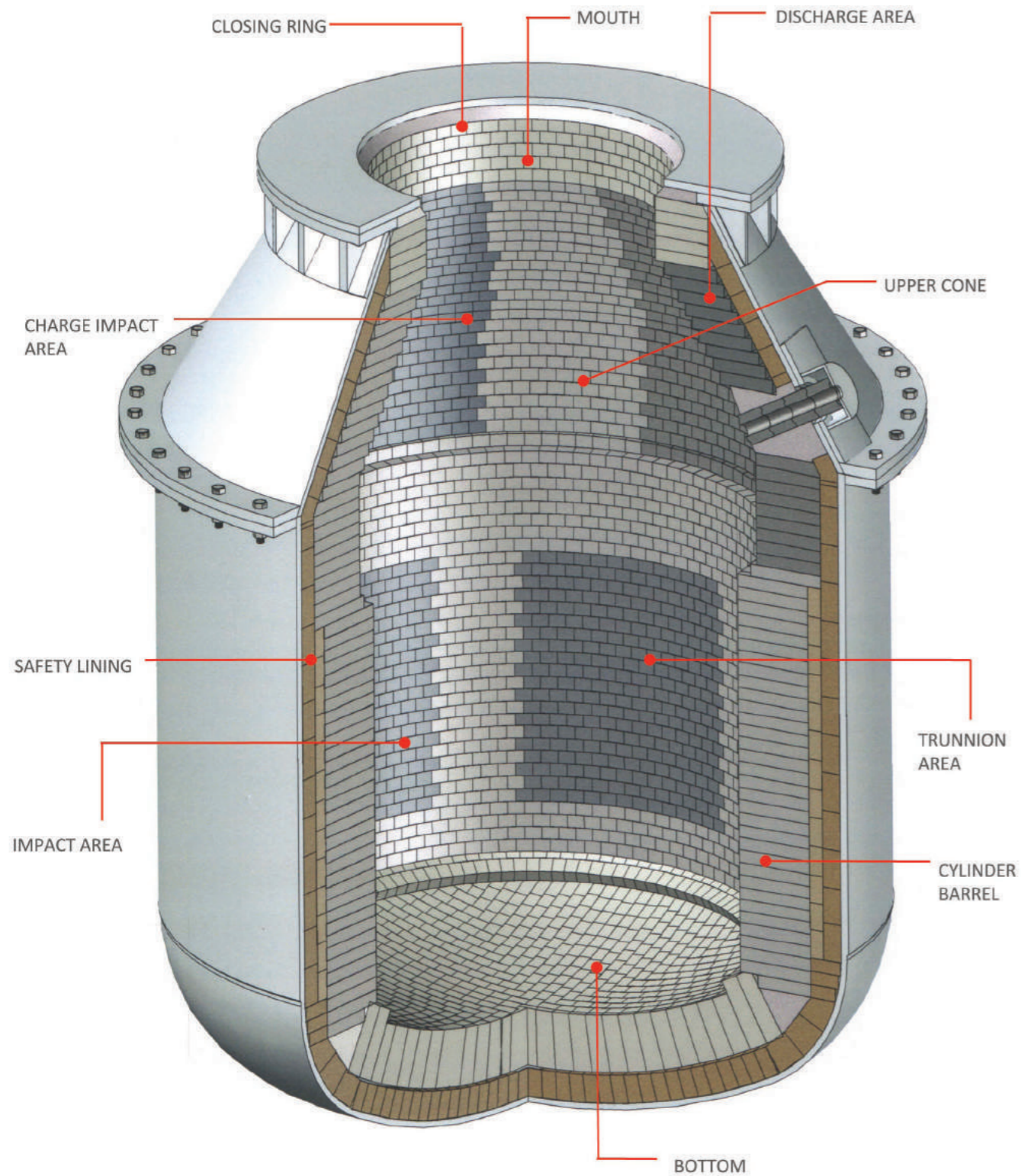


## PIG IRON TRANSPORT VESSEL TORPEDO CAR LINING CONCEPT



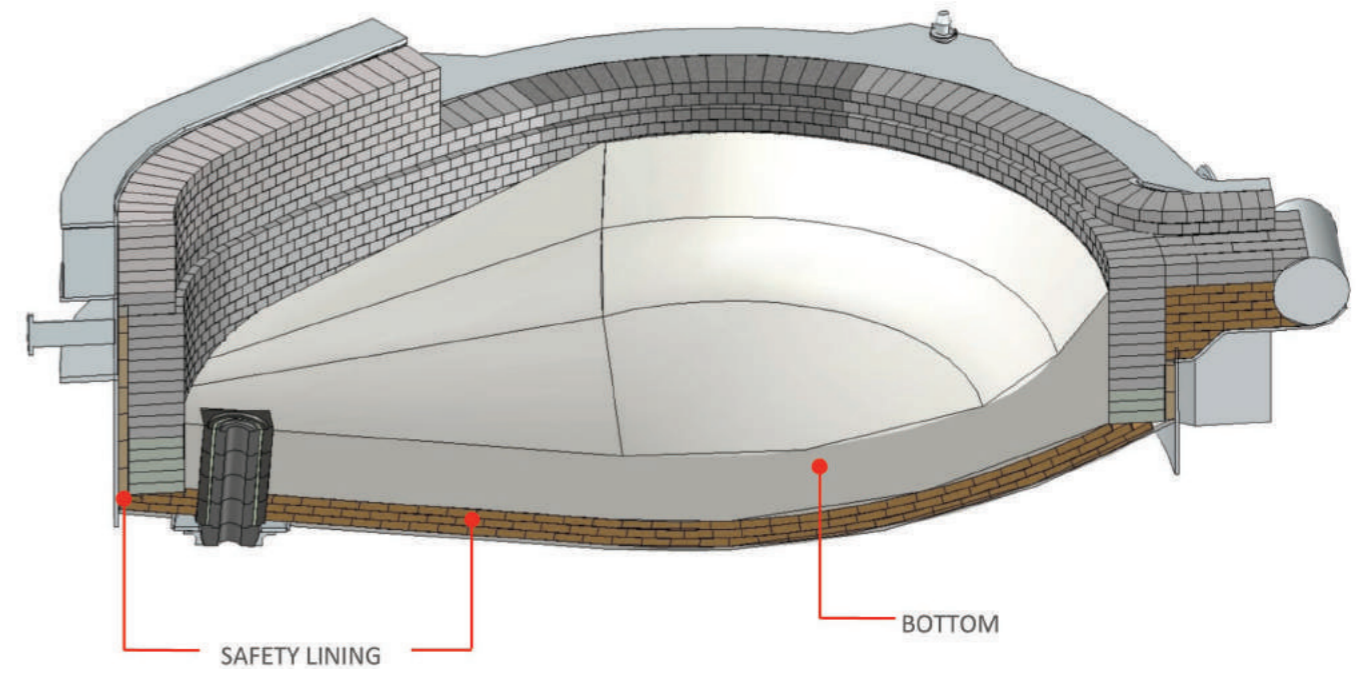
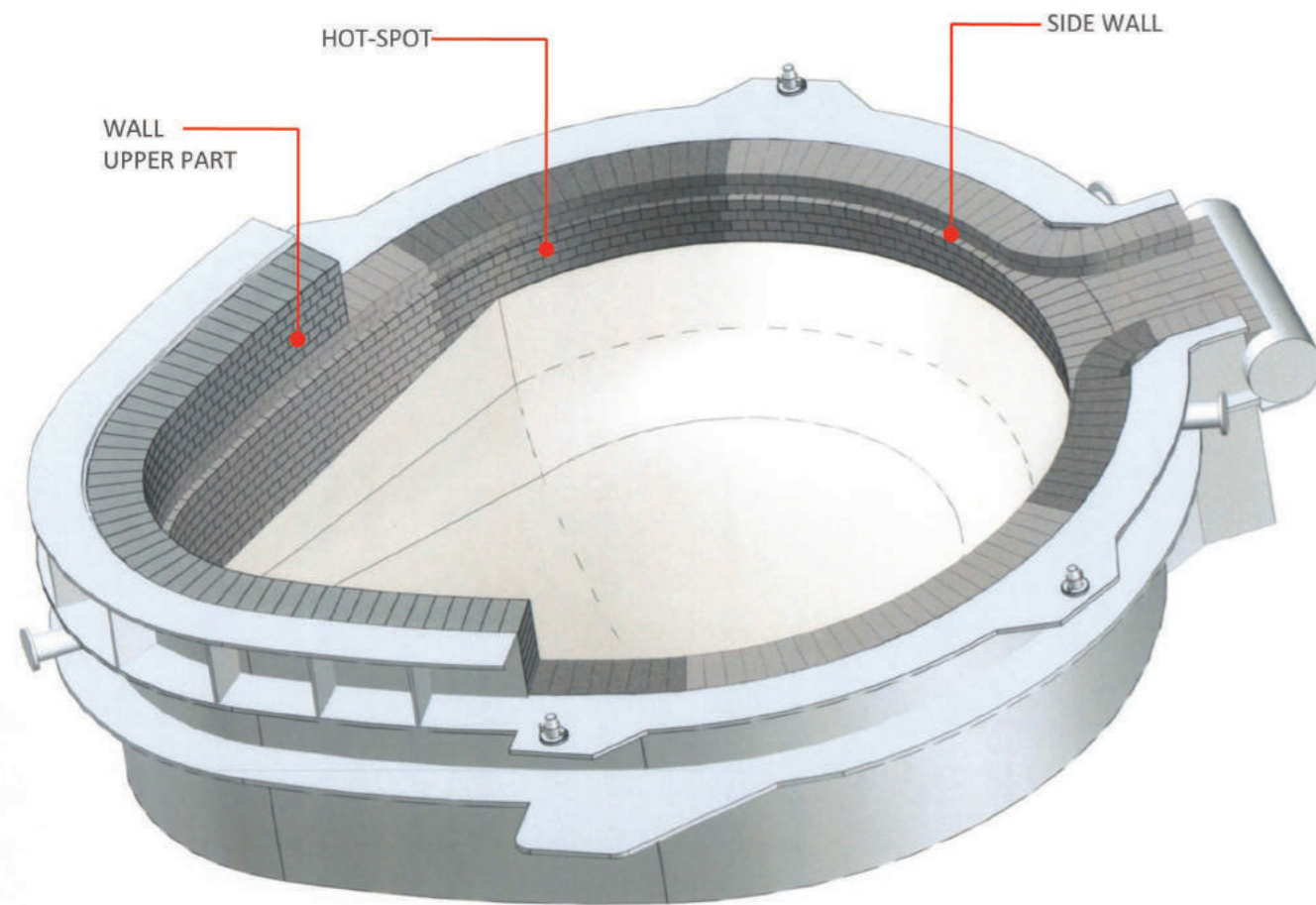
Application Area	Product Name	
	Bricks	Mixes
<b>WEAR LINING</b>	HAZAL ASC HAZAL S 65	DURCAST 865 VIBRADUR MC 865
<b>OUTLET</b>	HAZAL ASC HAZAL S 60	VIBRADUR 610 ASC...DURCAST K 9705 VIBRADUR TCA 95 DURCAST 880
<b>IMPACT ZONE</b>	HAZAL ASC HAZAL S 70 HAZAL S 65	
<b>SLAG ZONE</b>	HAZAL ASC	
<b>PERMANENT LINING</b>	HAZAL C 45/L HAZAL C 45 HAZAL C 42/L	SADUR 544
<b>INSULATING</b>	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0 CERAMIC FIBRE PLATE	

# BOF CONVERTER MAG-CARBON LINING CONCEPT



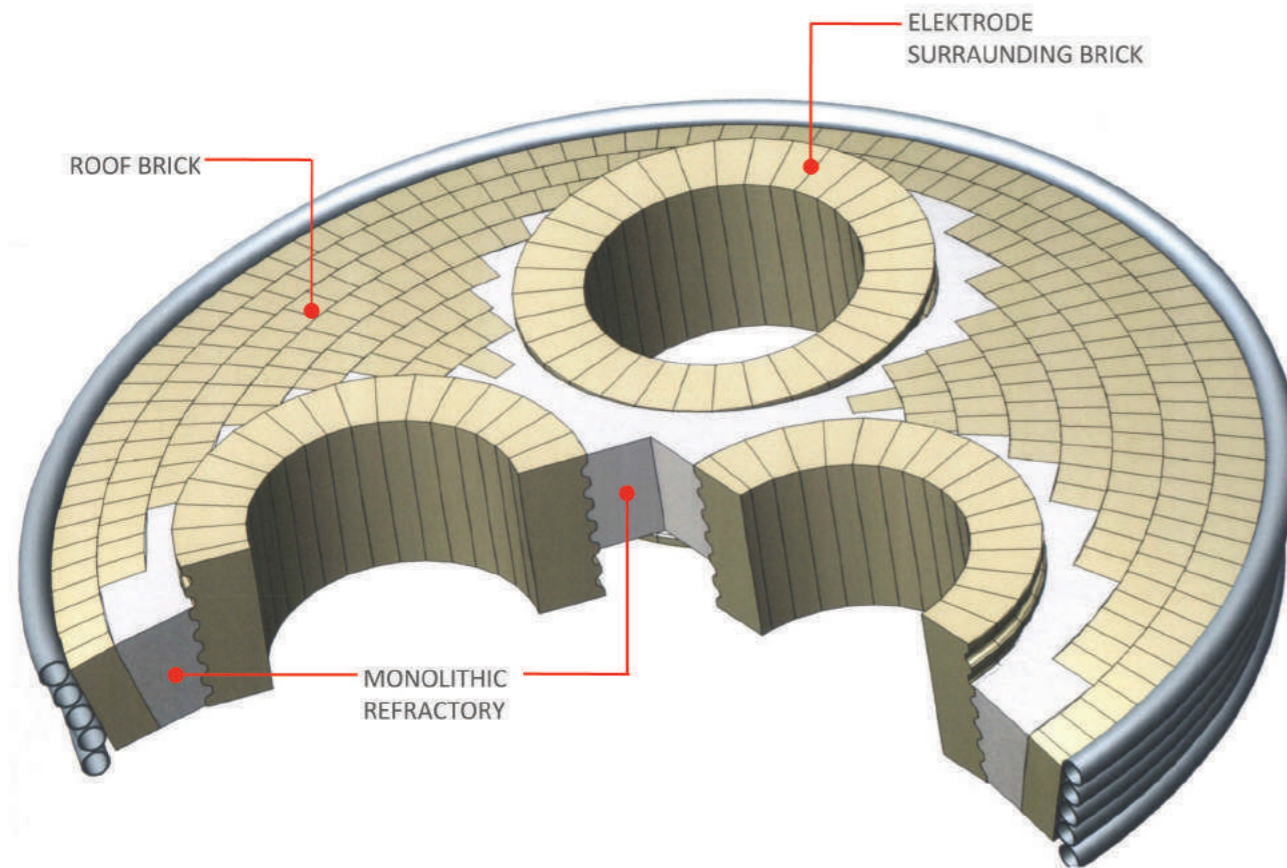
Application Area	Product Name	
	Bricks	Mixes
<b>MOUTH</b>	ERMAG 8023 ERMAG 7023 HAZMAG 95	RAMDUR MG 95 CR
<b>UPPER CONE</b>	ERMAG 8056 ERMAG 7026 ERMAG 6025	
<b>CONE CHARGE IMPACT AREA</b>	ERMAG 8025 ERMAG 7027 ERMAG 6024	
<b>CONE DISCHARGE AREA</b>	ERMAG 8027 ERMAG 7027 ERMAG 6027	RAMDUR MG 95 CR
<b>CYLINDER BARREL</b>	ERMAG 8056 ERMAG 7026 ERMAG 6025	
<b>TRUNNION AREA</b>	ERMAG 8027 ERMAG 7027 ERMAG 6027	
<b>BARREL IMPACT AREA</b>	ERMAG 8025 ERMAG 7025 ERMAG 6024	
<b>BOTTOM</b>	ERMAG 8056 ERMAG 7026 ERMAG 6025	RAMDUR MG 95 P RAMDUR MG 95 CR
<b>SAFETY LINING</b>	HAZMAG 95 HAZMAG 92	MORTAR, HAZBOND MG 95 MORTAR, HAZBOND MG 92

# EAF MAG-CARBON LINING CONCEPT



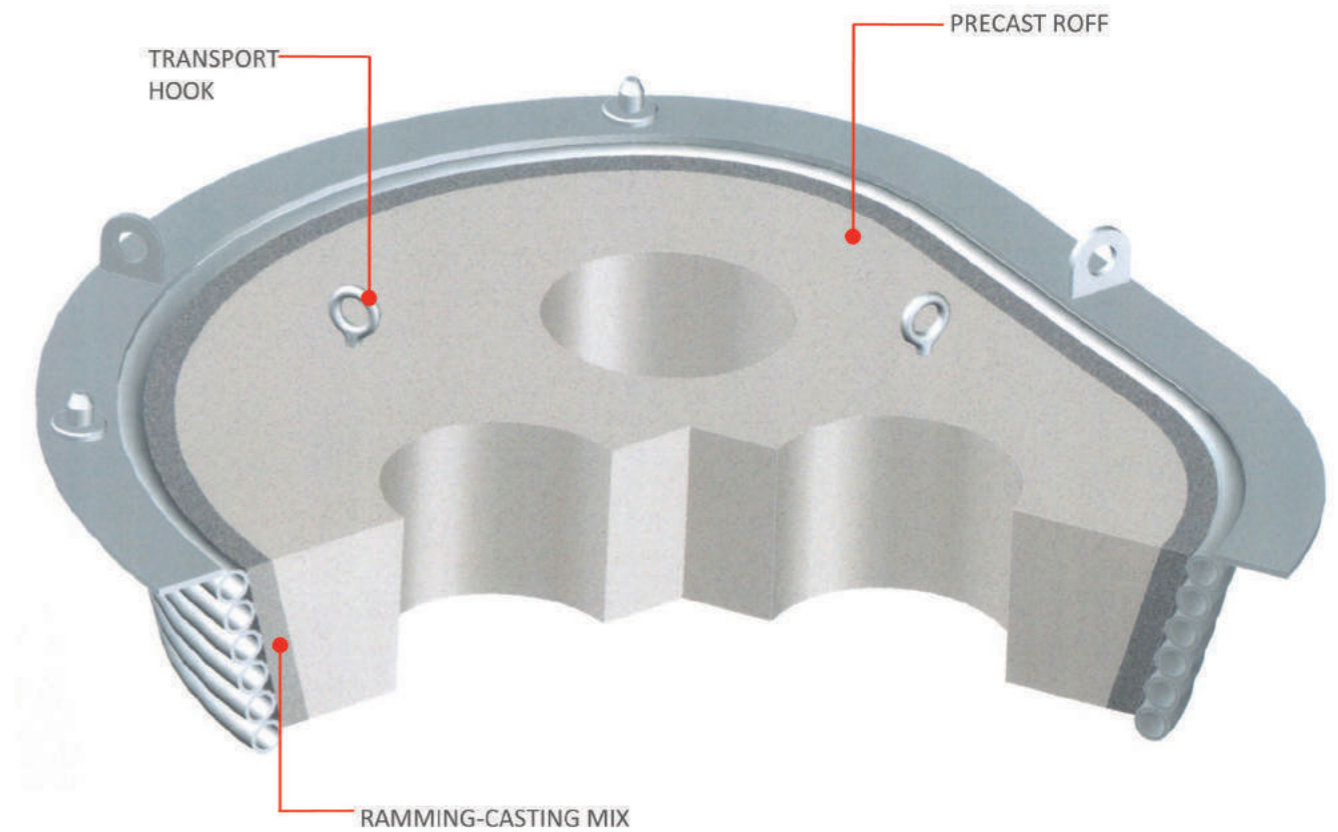
Application Area	Product Name	
	Bricks	Mixes
SUB-WALL	ERMAG 6024 ERMAG 6153 ERMAG 5024 ERMAG 5204	
SIDE WALL	ERMAG 7027 ERMAG 7026 ERMAG 6027 ERMAG 6026	
HOT-SPOT	ERMAG 8026 ERMAG 7026 ERMAG 6026	
WALL UPPER PART	ERMAG 6024 ERMAG 6153 ERMAG 5024	
BOTTOM		RAMDUR MG 80 HR VARDOL EPD.6
SAFETY LINING	HAZMAG 95 HAZMAG 92	MORTAR, HAZBOND MG 95 MORTAR, HAZBOND MG 92

## EAF ROOF BRICK LINING CONCEPT



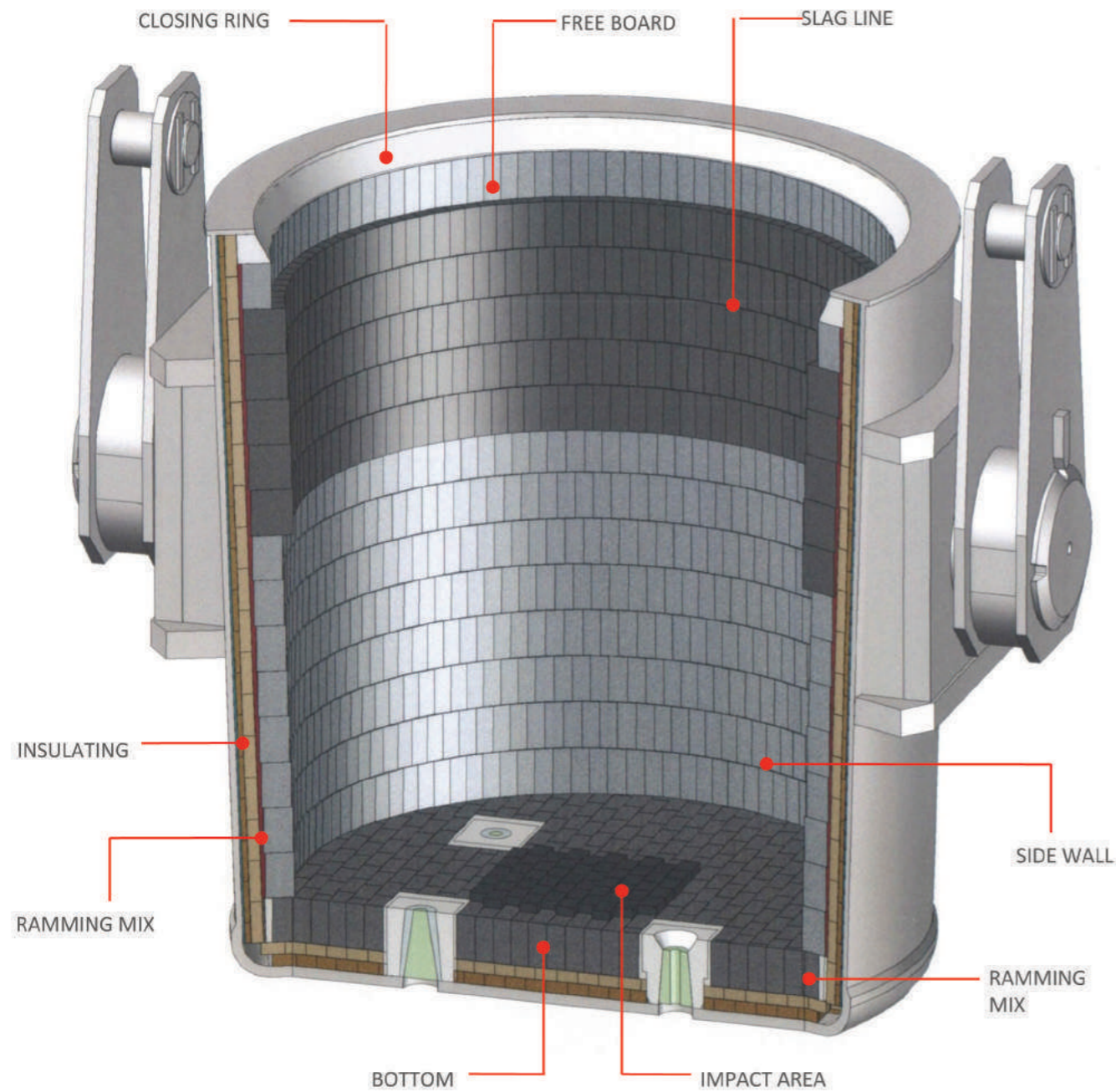
Application Area	Product Name	
	Bricks	Mixes
<b>EAF ROFF BRICKS</b>	HAZAL GA 90 PT/CR HAZAL GA 90 PT HAZAL B85 HAZAL B80	MORTAR, DURBOND 95/CR MORTAR, HAZBOND GA 90 MORTAR, HAZBOND B 85 MORTAR, HAZBOND B 80
<b>ELEKTRODE SURROUNDING BRICKS</b>	HAZAL GA 90PT/CR HAZAL GA 90 PT HAZAL B 85 HAZAL B 80	MORTAR, DURBOND 95/CR MORTAR, HAZBOND GA 90 MORTAR, HAZBOND B 85 MORTAR, HAZBOND B 80
<b>MONOLITHIC REFRACTORIES</b> DELTA ZONE		DURVAST K 9505 SADUR 995 RA 06 EA VIBRADUR MC 880

## EAF ROOF PRECAST LINING CONCEPT



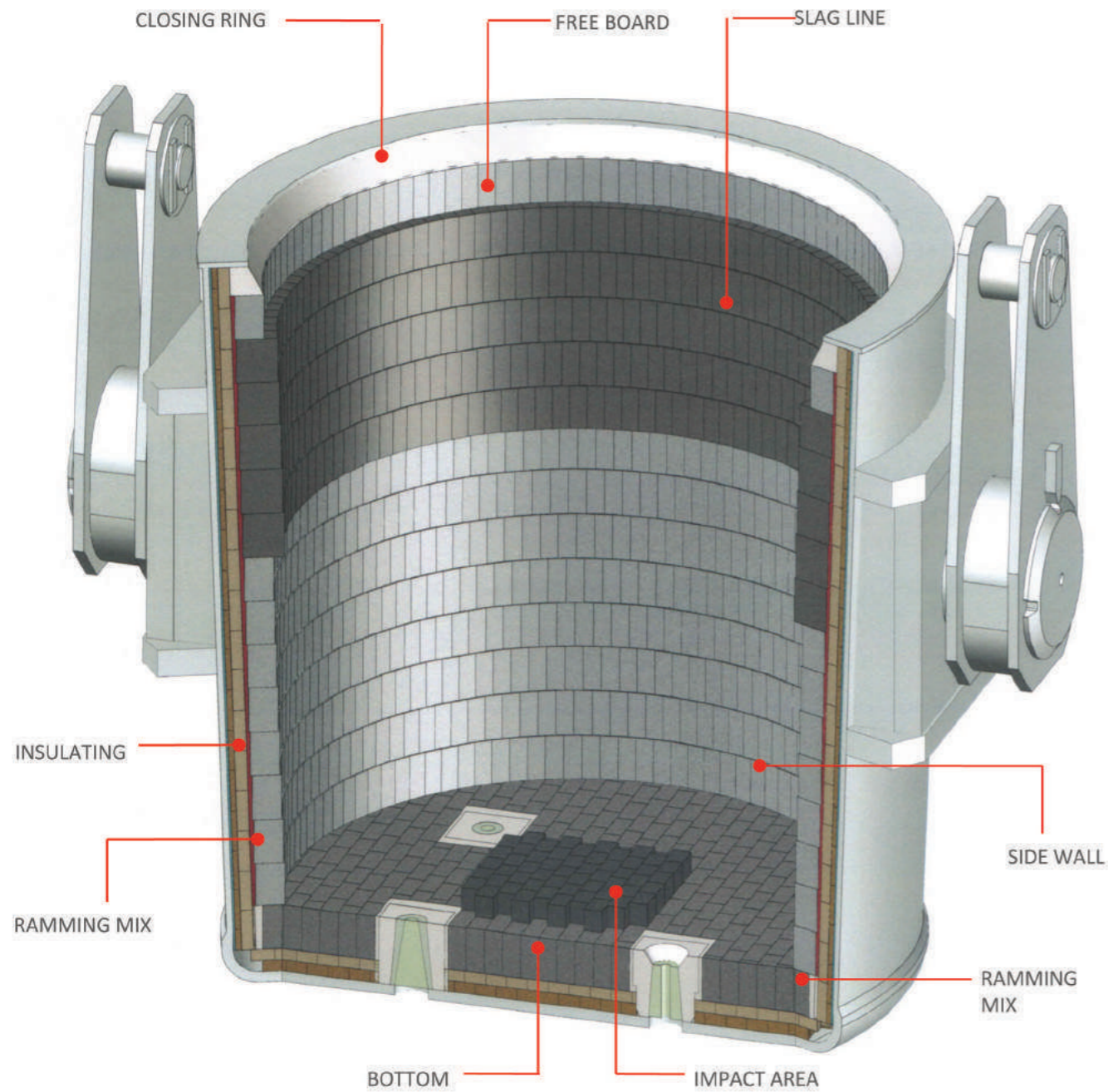
Application Area	Product Name	
	Bricks	Mixes
<b>PRECAST ROFF</b>	VIBRADUR TCA 99 VIBRADUR TCA 98 VIBRADUR TCA 95 VIBRADUR TCA 98 CR VIBRADUR TCA 95 CR ULTRADUR B 85 CR	
<b>RAMMING-CASTING MIX</b>		DURCAST K 9505 SADUR 995 EA VIBRADUR MC 880

# LADLE DOLOMITE LINING CONCEPT



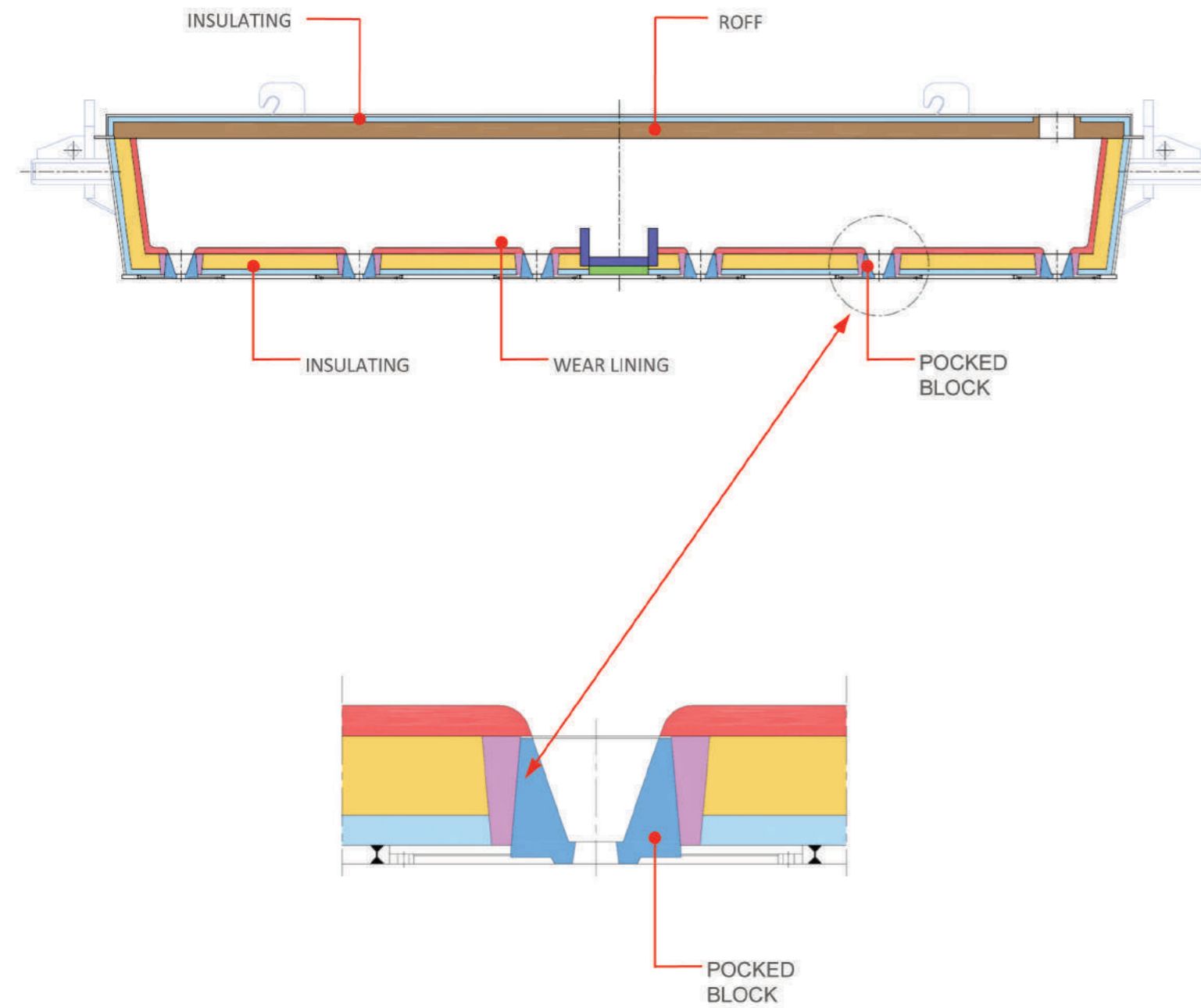
Application Area	Product Name	
	Bricks	Mixes
<b>SLAG ZONE</b>	ERDOL 024 ERDOL 005 ERMAG 7026	
<b>WEAR LINING/SIDE WALL</b> RAMMING MIX	ERDOL 010	DUROFILL
<b>BOTTOM</b> AROUND WELL BLOCK	ERDOL 010	DURAMDOL
<b>IMPACT AREA-BOTTOM</b>	ERDOL 013 ERSPIN 8003	
<b>IMPACT AREA-SIDE WALL</b>	ERDOL 013	
<b>SAFETY LINING</b>	HAZAL B 80 HAZMAG 92, HAZMAG 95 HAZAL S 55 HAZAL C 45	MORTAR, HAZBOND B 80 MORTAR, HAZBOND MG 95 MORTAR, HAZBOND S 60 MORTAR, HAZBOND C 45

# LADLE MAG-CARBON LINING CONCEPT



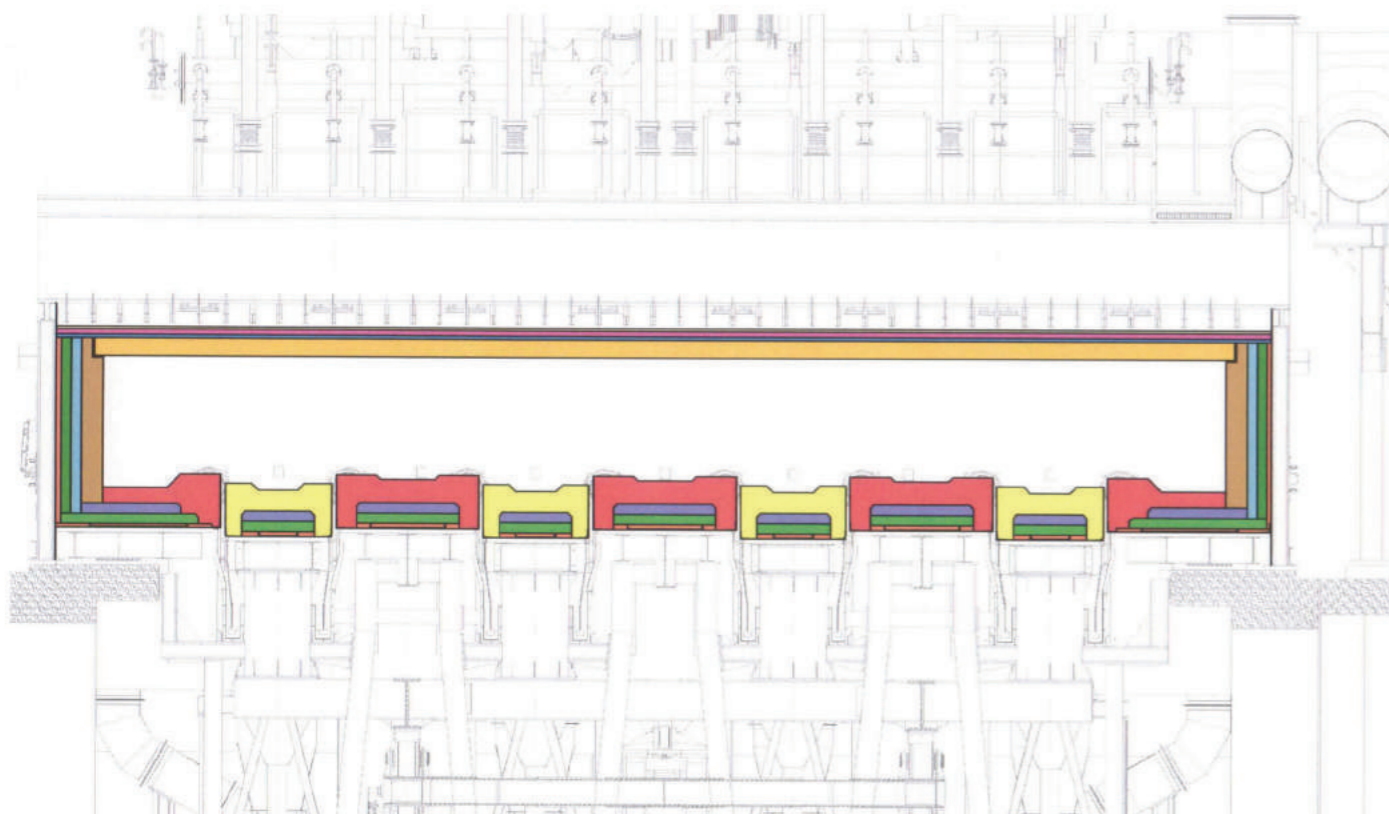
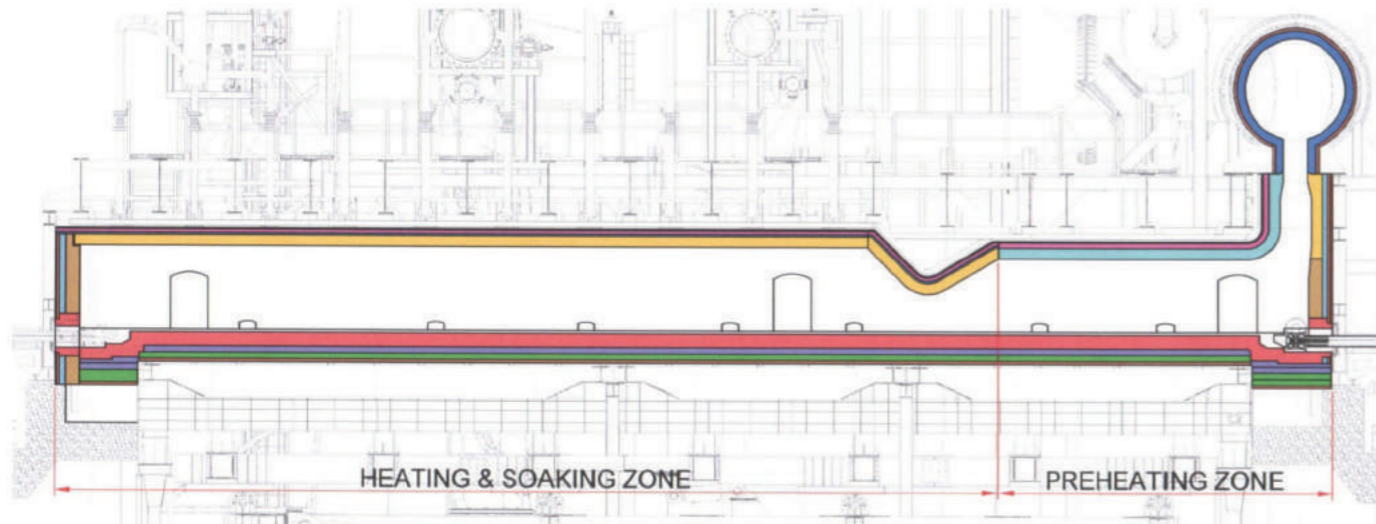
Application Area	Product Name	
	Bricks	Mixes
<b>FREE BOARD</b> CLOSING RING	ERMAG 5004 ERMAG 5303	DURCAST 9505 PT PLASDUR 80
<b>SLAG ZONE</b>	ERMAG 5026, ERMAG 5027 ERMAG 7026, ERMAG 7027 ERDOL 005 ERDOL 024	
<b>WEAR LINING/SIDE WALL</b>	ERMAG 5024, ERMAG 5025, ERMAG 5026 ERMAG 6024, ERMAG 6025, ERMAG 6026 ERSPIN 6203 ERDOL 010	ERFIL DUROFIL
<b>BOTTOM</b>	ERMAG 5023, ERMAG 5024 ERMAG 6023, ERMAG 6024 ERSPIN 7003 ERDOL 010 ERDOL 013	DURCAST 9505 PT DURAMDOL
<b>IMPACT AREA-BOTTOM</b>	ERMAG 5023 ERMAG 6023 ERSPIN 7003 ERSPIN 8003 ERDOL 013	
<b>IMPACT AREA-SIDE WALL</b>	ERMAG 6023 ERSPIN 8003 ERDOL 013	
<b>SAFETY LINING</b>	HAZAL B 80 HAZMAG 92, HAZMAG 95 HAZAL S 55 HAZAL C 45	MORTAR, HAZBOND B 80 MORTAR, HAZBOND MG 95 MORTAR, HAZBOND S 60 MORTAR, HAZBOND C 45

## CONTINUOUS CASTING SYSTEM TUNDISH LINING CONCEPT



Application Area	Product Name	
	Bricks	Mixes
<b>WEAR LINING</b>		VIBRADUR BCA 85 VIBRADUR BCA 85 CR
<b>IMPACT PLATE</b>		VIBRADUR TCA 95 VIBRADUR TCA 87 VIBRADUR TCA 85
<b>POCKED BLOCK</b>		VIBRADUR TCA 95 VIBRADUR TCA 85
<b>RAMMING MIX</b>		RAMDUR 85 W
<b>ROOF</b>		VIBRADUR MC 844 DURCAST 765 IZODUR A8
<b>INSULATING</b>		HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0 CERAMIC FIBRE PLATE

# REHEAT FURNACES WALKING BEAM



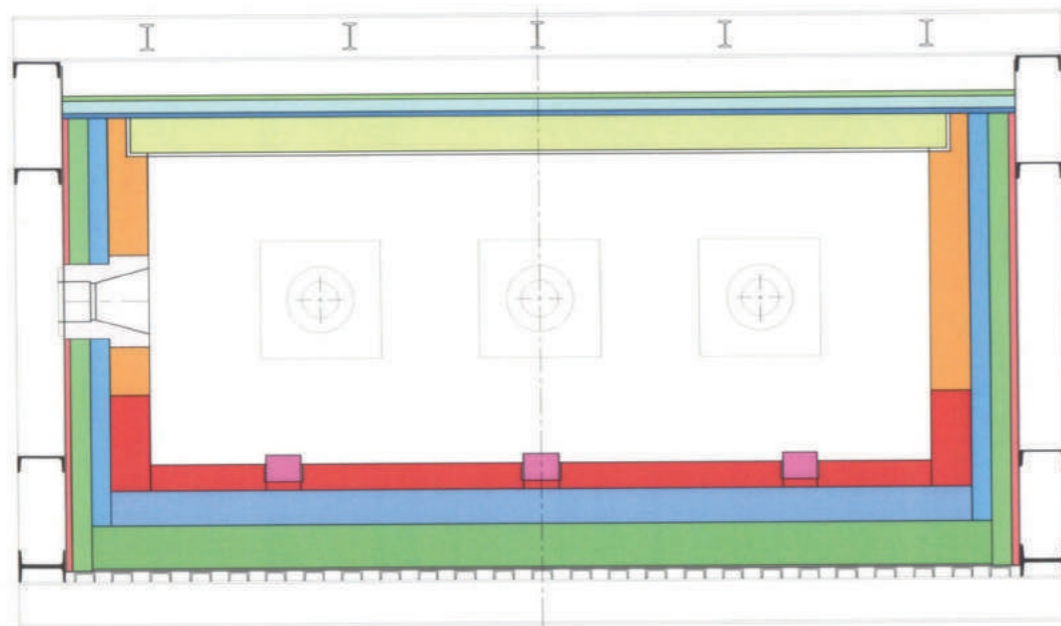
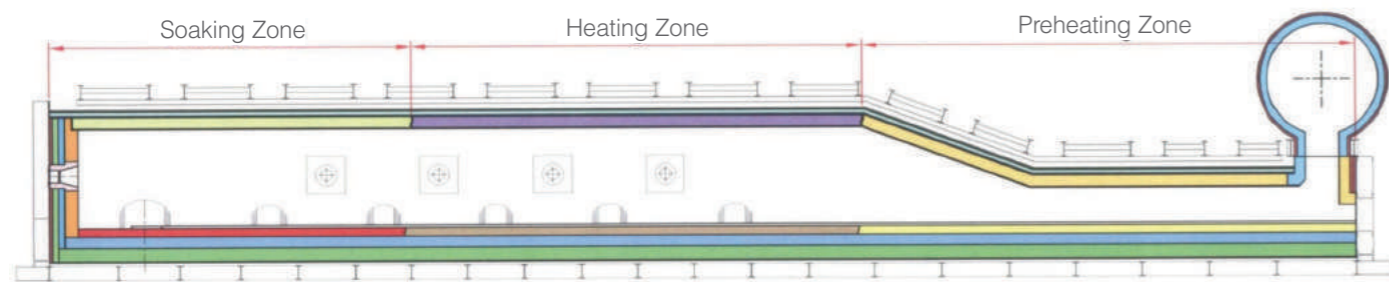
Application Area		Product Name	
		Bricks	Mixes
PREHEATING ZONE	<b>ROOF</b>		
	WORKING LAYER	HAZAL B65.. HAZAL C50.. HAZAL C45	DURCAST 765 VIBRADURMC.865..MC.844..MC.544 IZODUR S4..P4 IZODUR P05..P05P
	1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT 1,0 HAZOLIT 0,6	
	<b>SIDE WALL</b>		
	WORKING LAYER	HAZAL B65.. HAZAL C50.. HAZAL C45	DURCAST 765 VIBRADURMC.865..MC.844..MC.544 IZODUR S4..P4 IZODUR P05..P05P
	1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT 1,0 HAZOLIT 0,8	
<b>BOTTOM-FIXED BEAM</b>			
WORKING LAYER		DURCAST 765 VIBRADURMC.865..MC.844	
1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT 1,25 HAZOLIT 1,0	IZODUR S4..P7 IZODUR P7..P4	
<b>BOTTOM-WALKING BEAM</b>			
WORKING LAYER		DURCAST 765 VIBRADURMC.865..MC.844	
1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT 1,25 HAZOLIT 1,0	IZODUR S4..P7 IZODUR P7..P4	

HEATING ZONE	<b>ROOF</b>		
	WORKING LAYER	HAZAL S65.. HAZAL B85.. HAZAL B65	VIBRADUR 65.AK.BCA 80..MC 865 DURCAST 880..765 IZODUR A4..S4 IZODUR P7..P4
	1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT 0,8 HAZOLIT 0,6	
	<b>SIDE WALL</b>		
	WORKING LAYER	HAZAL S65.. HAZAL B85.. HAZAL B65	VIBRADUR 65.AK.BCA 80..MC 865 DURCAST 880..765
	BRENNER 1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT 1,0 CAL-SIL	DURCAST 9505 IZODUR A4..S4 IZODUR P7..P4
<b>BOTTOM-FIXED BEAM</b>			
WORKING LAYER		VIBRADUR 65.AK.BCA 80..MC 865 DURCAST 880..765	
1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT 1,25 HAZOLIT 1,0	IZODUR A4..S4 IZODUR P7..P4	
<b>BOTTOM-WALKING BEAM</b>			
WORKING LAYER		VIBRADUR 65.AK.BCA 80..MC 865 DURCAST 880..765	
1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT 1,25 HAZOLIT 1,0	IZODUR A4..S4 IZODUR P7..P4	

<b>SKIDS</b>		VIBRADUR 65.AK.BCA 80..MC 865
<b>STACK,RECUPERATOR ETC.</b>		IZODUR A4..S4..P4

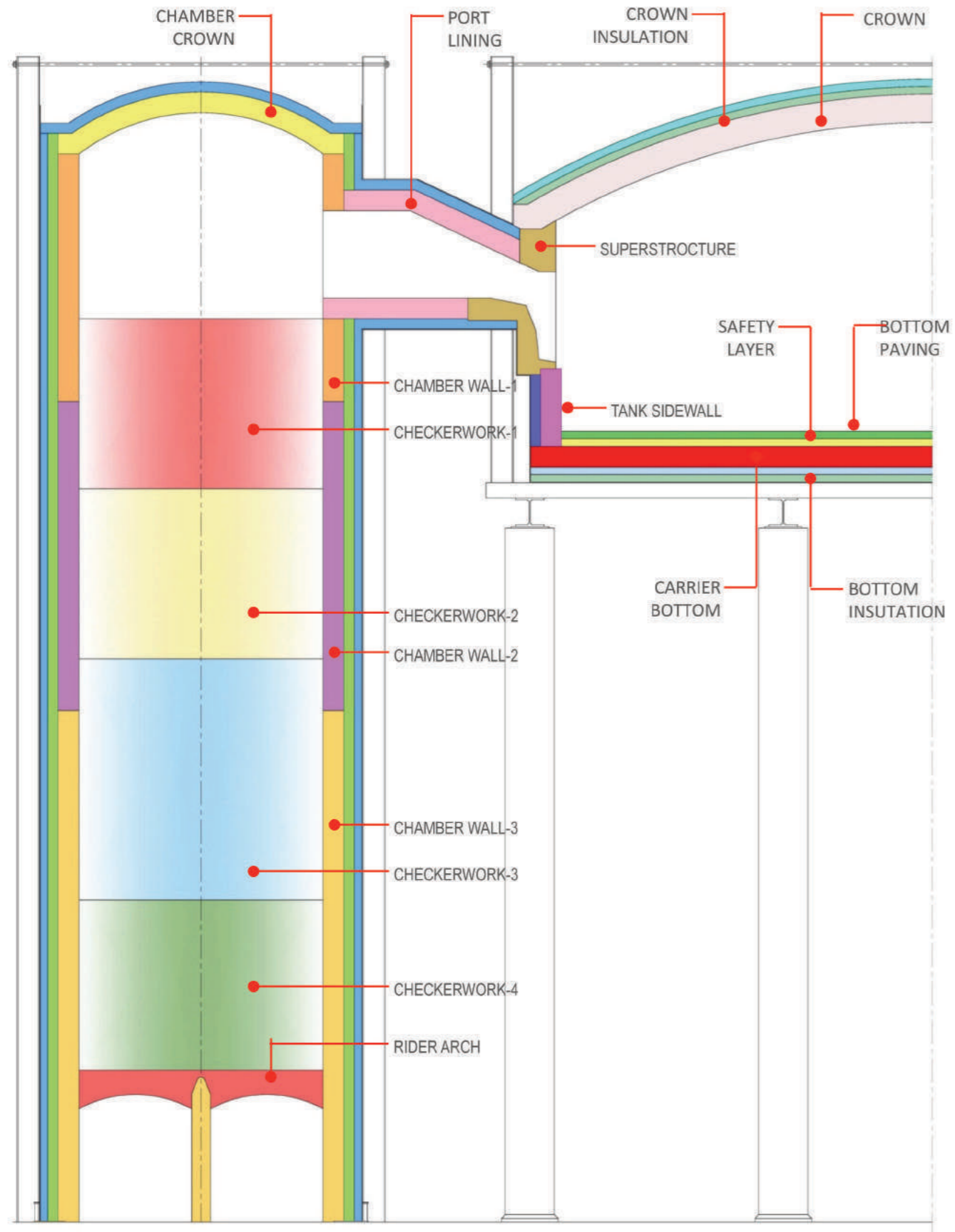


# REHEAT FURNACES PUSHER TYPE



Application Area		Product Name	
		Bricks	Mixes
PREHEATING ZONE	<b>ROOF</b>		
	WORKING LAYER	HAZAL C42.. HAZAL C39	VIBRADUR MC.444.HS...MC.444 HS
	1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6	IZODUR S 4 IZODUR P 05 0
	<b>SIDE WALL</b>		
	WORKING LAYER	HAZAL C42.. HAZAL C39	VIBRADUR MC.444.HS...MC.444 HS
	1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6	IZODUR S 4 IZODUR P 05 0
BOTTOM	WORKING LAYER	HAZAL B85	VIBRADUR BCA 85...50 DEX
	1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6	IZODUR S 4 IZODUR P 4
HEATING ZONE	<b>ROOF</b>		
	WORKING LAYER	HAZAL C45.. HAZAL C42	VIBRADUR MC.844.HS...MC.544 HS
	1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6	IZODUR S 4 IZODUR P 05 P
	<b>SIDE WALL</b>		
	WORKING LAYER	HAZAL C45.. HAZAL C42	VIBRADUR MC.844.HS...MC.544 HS
	BRENNER 1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6	DURCAST 9505 IZODUR S 4 IZODUR P 05 P
BOTTOM	WORKING LAYER	KOREX 90... HAZAL B 85	VIBRADUR BCA 85...85 CR
	1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0	IZODUR A 4 IZODUR A 7
SOAKING ZONE	<b>ROOF</b>		
	WORKING LAYER	HAZAL S55.. HAZAL C50	VIBRADUR 65 AK...MC 865
	1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0	IZODUR A 4 IZODUR A 7
	<b>SIDE WALL</b>		
	WORKING LAYER	HAZAL S55.. HAZAL C50	VIBRADUR 65 AK...MC 865
	BRENNER 1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0	DURCAST 9505 IZODUR A 4 IZODUR A 7
BOTTOM	WORKING LAYER	KOREX 90.. HAZAL B85	VIBRADUR BCA 85...85 CR
	1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0	IZODUR A 4 IZODUR A 7

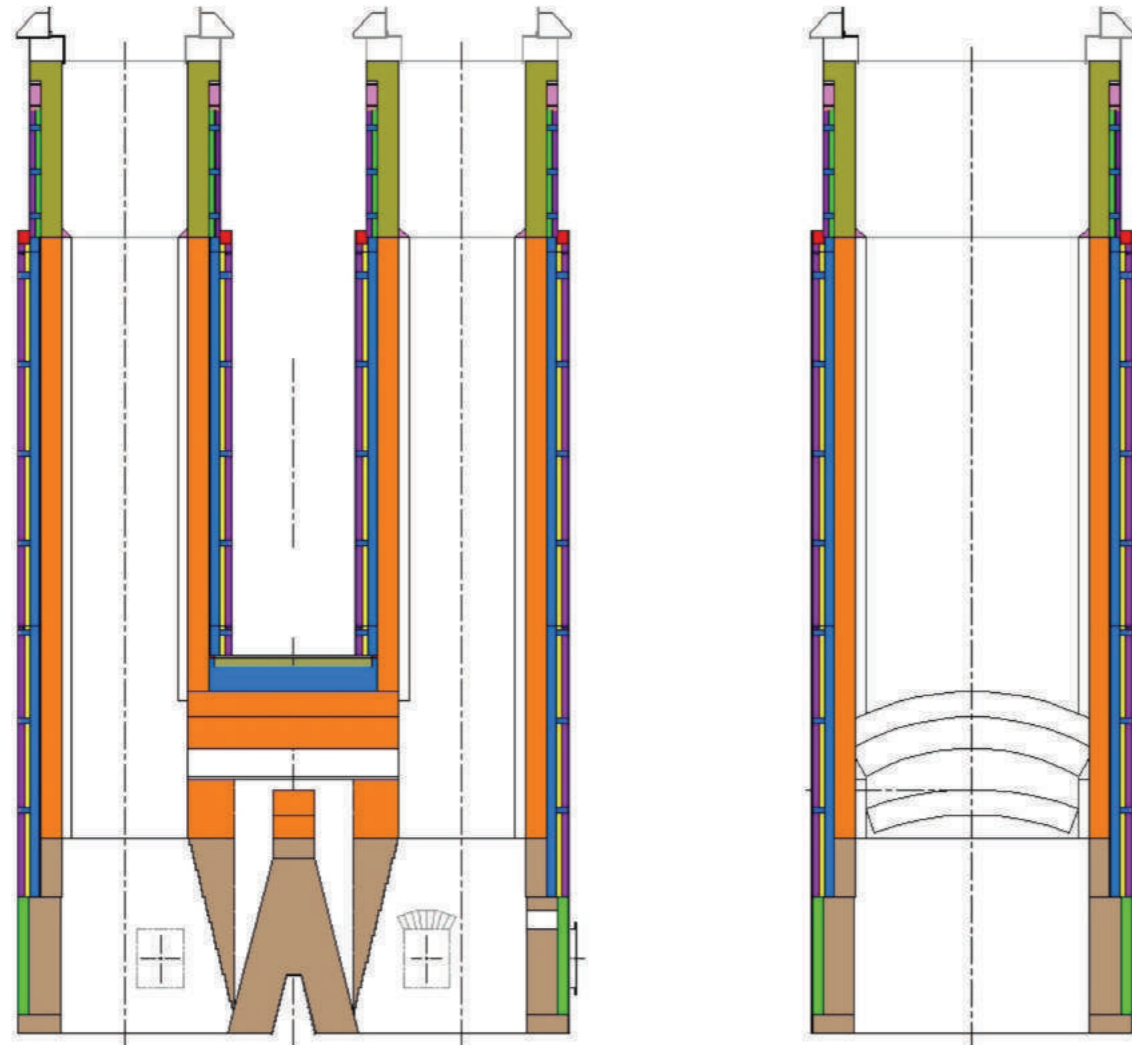
# GLASS MELTING TANK and REGENERATOR LINING CONCEPT



Application Area	Product Name		
	Bricks	Mixes	
REGENERATOR	PORT LINING	KOREX 95...KOREX 90	ULTRADUR ZR 40
	CHAMBER CROWN	HAZMAG SP 85 KROMAG 50/F...HAZMAG 97	RAMDUR MG 95 MS ULTRADUR ZR 40
	CHAMBER WALL-1	HAZMAG SP 85...HAZMAG SP 90 KROMAG 50/F...HAZMAG 97	
	CHAMBER WALL-2	HAZMAG 95 HAZMAG 92	
	CHAMBER WALL-3	HAZAL S 55 HAZAL C 45/L...HAZAL C 42/L	
	RIDER ARCH	HAZAL FM 75 HAZAL S 70...HAZAL C42/L	VIBRADUR 50 D-EX
	CHECKERWORK-1	KOREX 95 KOREX 95...HAZMAG 97	
	CHECKERWORK-2	HAZMAG SP 90 HAZMAG 95...HAZMAG 92	
	CHECKERWORK-3	HAZMAG SP 85 HAZMAG 92...HAZMAG 90	
	CHECKERWORK-4	HAZAL S 55 HAZAL C45/L...HAZAL C/42L	
INSULATING	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0		

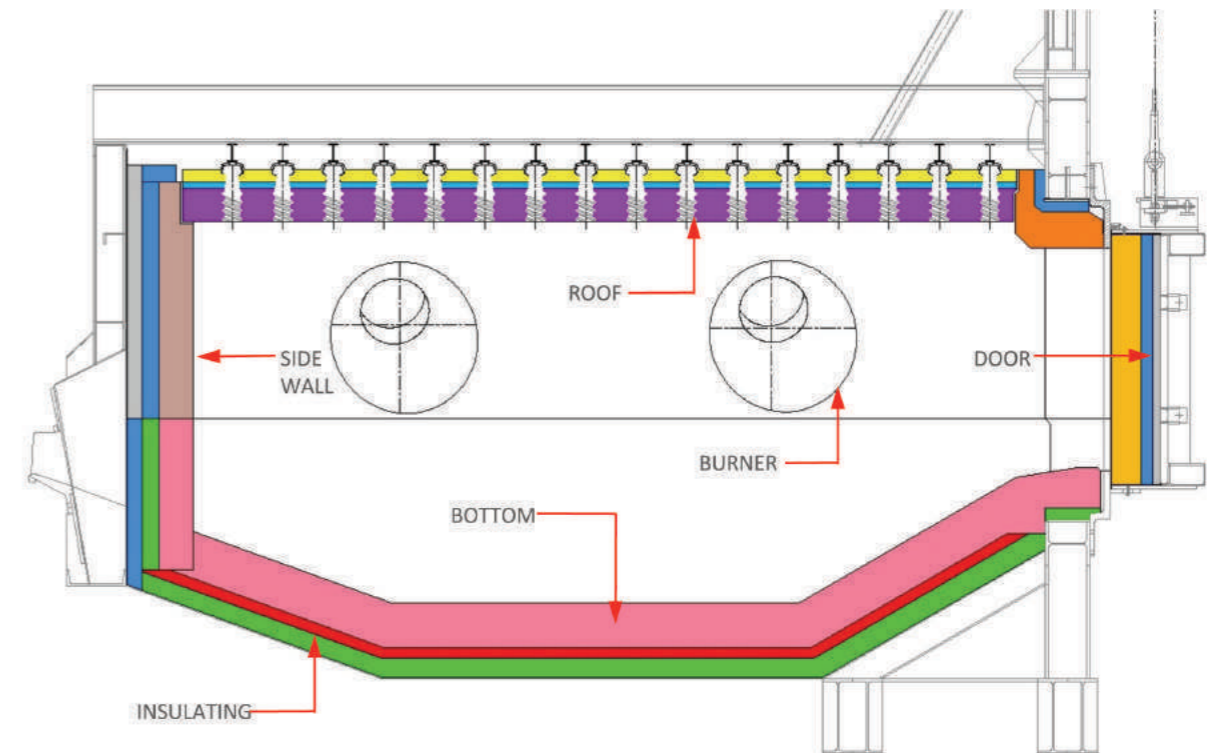
GLASS MELTING TANK for COLORED CONTAINER GLASS	CROWN		
	BOTTOM PAVING	KOREX 65 CR 30 KOREX 85 CR 10	
	TANK SIDEWALLS	KOREX 65 CR 30 KOREX 85 CR 10	
	SAFETY LAYER	KOREX 85 CR 10 KOREX 85 CR 10	
	SUPERSTRUCTURE	HAZAL FM 75 HAZAL GA 90 PT/CR	
	SIDEWALL INSULATING	HAZAL S 55 HAZAL C 45/L	
	CARRIER BOTTOM	HAZAL S 65 HAZAL C 45/L	
	BOTTOM INSULATING	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0	
	CROWN INSULATING	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0	
	SUPERSTRUCTURE INSULATING	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0	

## ANNULAR SHAFT KILN LIME LINING CONCEPT



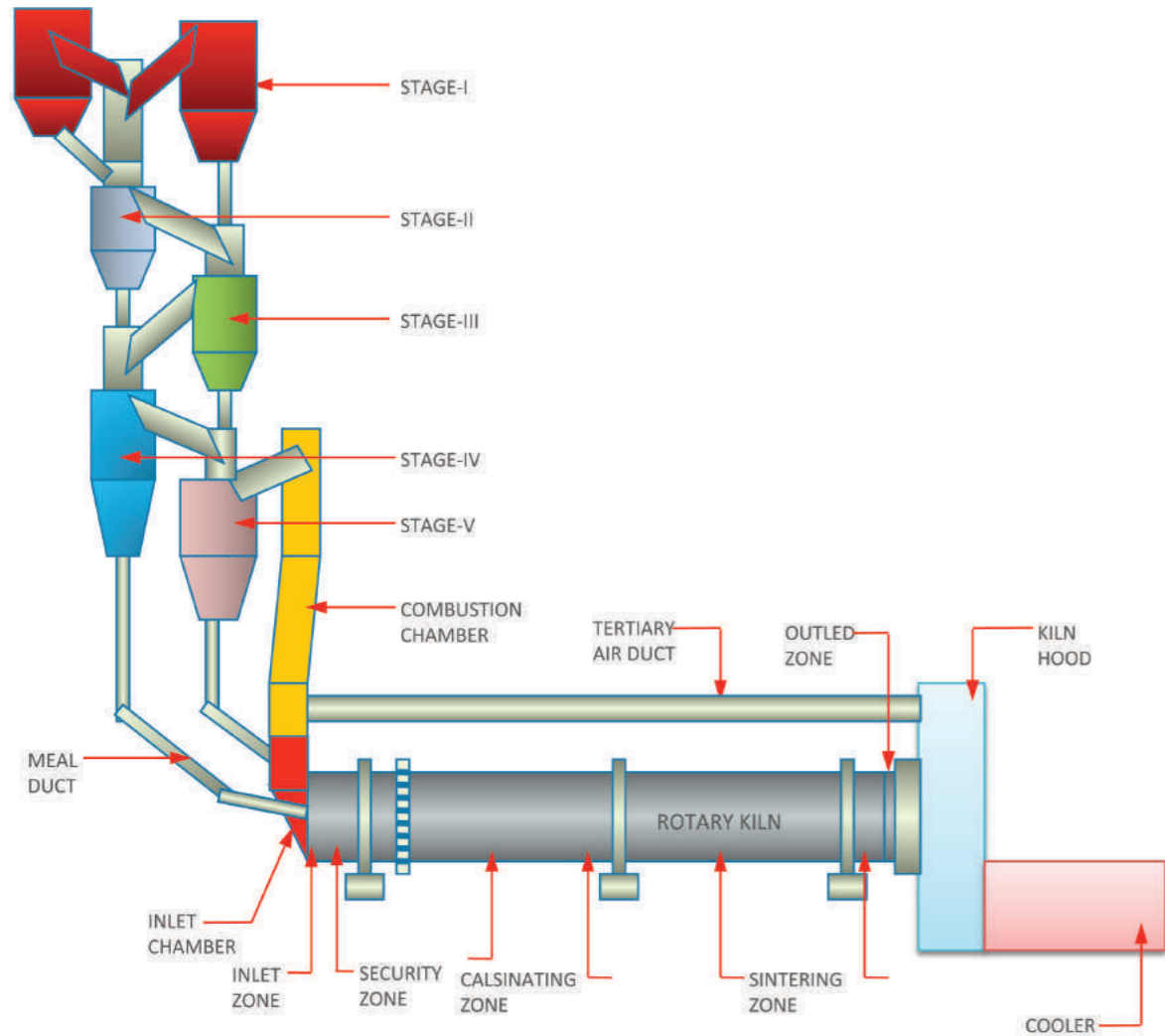
Application Area	Product Name	
	Bricks	Mixes
<b>INLET ZONE</b>	HAZAL C 45 HAZAL C 40	RAMDUR 40 AS RAMDUR 50 AS
<b>FIRING ZONE</b>	KROMAG 70/F KROMAG 80 HAZAL B 80	RAMDUR MG 95 MS
<b>COOLING ZONE</b>	HAZAL C 45 HAZAL C 40	RAMDUR 40 AS RAMDUR 50 AS
<b>PERMANENT LINING</b>	HAZAL C 35 HAZAL C 30	
<b>INSULATING</b>	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0 CAL-SIL	

## MELTING-HOLDING FURNACE ALUMINIUM LINING CONCEPT



Application Area	Product Name	
	Bricks	Mixes
<b>ROOF</b>	<b>WORKING LAYER</b> 1. INSULATING LAYER 2. INSULATING LAYER	VIBRADUR 60 A VIBRADUR MC 880 VIBRADUR MC 865 IZODUR P 4...S 4 IZODUR P 05...P 05 VG
<b>SIDE WALL</b>	<b>WORKING LAYER</b> 1. INSULATING LAYER 2. INSULATING LAYER	HAZAL S 60 HAZAL B 80 HAZAL B 85/PF HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6 ...CAL-SIL
<b>BOTTOM</b>	<b>WORKING LAYER</b> 1. INSULATING LAYER 2. INSULATING LAYER	HAZAL GA 90 PT HAZAL B 85/PF KOREX 90 HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6
<b>MISCELLANEOUS</b>	<b>DOORS</b>	HAZAL S 60 HAZAL B 80 HAZAL B 85/PF
	<b>BURNER</b>	VIBRADUR TCA 95 DURCAST K 9505
	<b>STACK</b>	DURCAST 430 SADUR 430 IZODUR P 05
	INSULATING LAYER	CAL-SIL

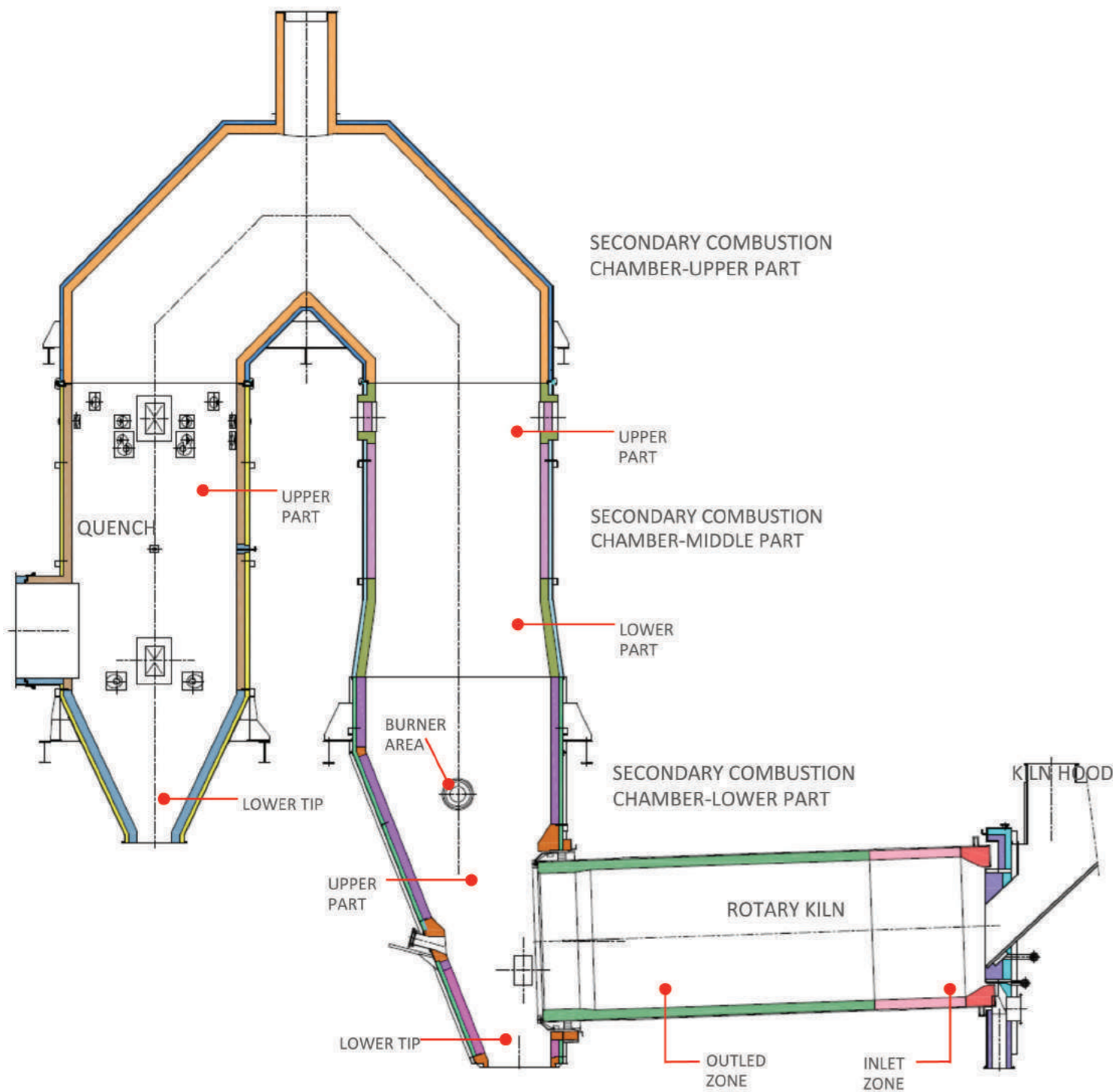
# ROTARY KILN PLANTS CEMENT INDUSTRY LINING CONCEPT



Application Area	Product Name	
	Bricks	Mixes
<b>ROTARY KILN</b>		
<b>INLET ZONE</b>	HAZAL ASC 5	VIBRADUR 605 ASC...SADUR 750
<b>SECURITY ZONE</b>	HAZAL ASC 5	
<b>CALSINATING ZONE</b>	HAZAL 15 ASC... HAZAL T2AR	
<b>UPPER TRANSITION ZONE</b>	HAZMAG SP 85	
<b>SINTERING ZONE</b>	HAZMAG SP 90	
<b>LOWER TRANSITION ZONE</b>	HAZMAG SP 85	
<b>OUTLET ZONE</b>	HAZMAG SP 85	VIBRADUR 605 ASC... VIBRADUR 30 ASC

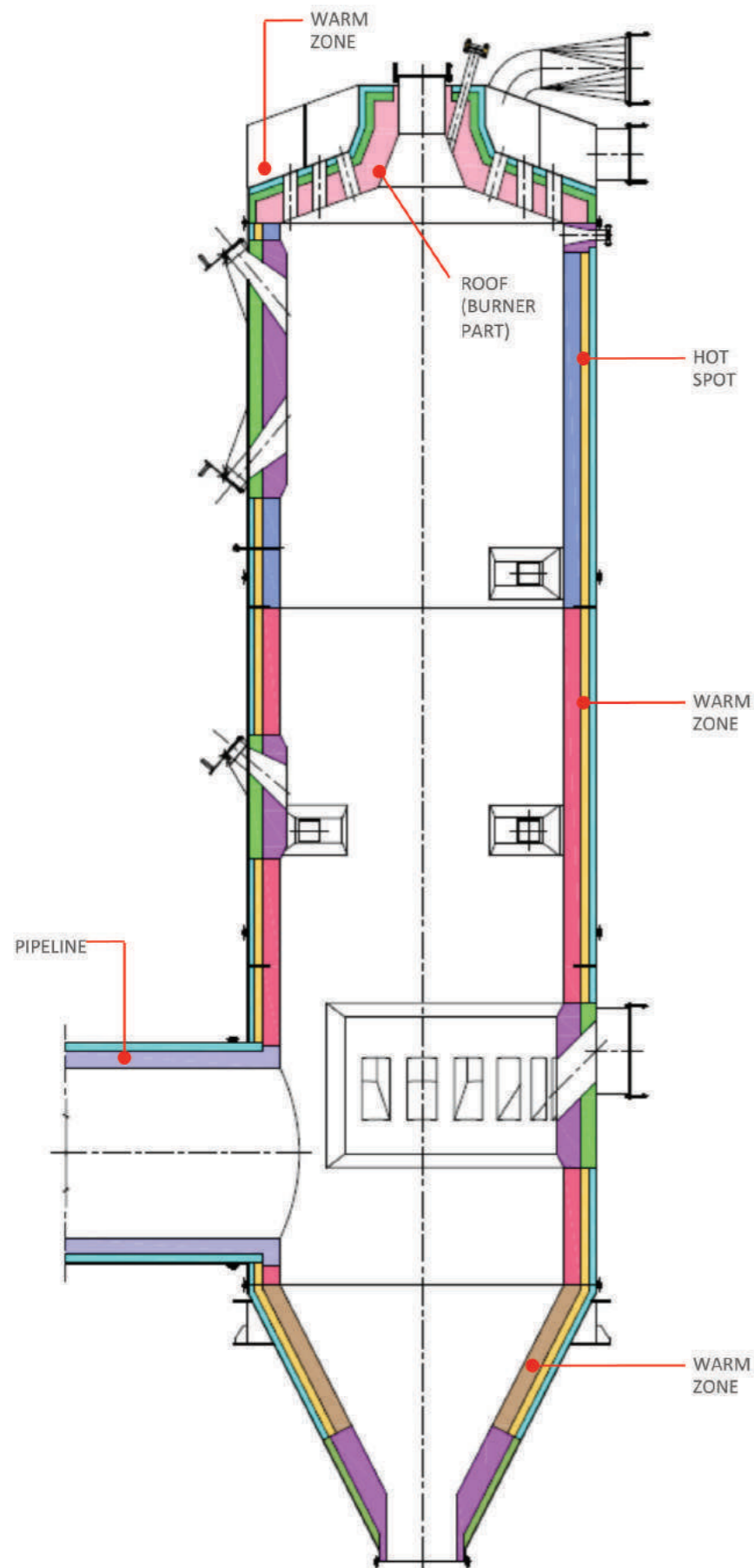
Application Area	Product Name			
	Bricks	Mixes		
<b>PREHEATER</b>	<b>STAGE-I</b> INSULATION	HAZAL C 30 HAZAL C 35 HAZOLIT SIZ 0,6 CAL-SIL	SADUR 444...GUNDUR 30 GG SADUR 544...GUNDUR 44 GG IZODUR P 05 IZOGUNDUR P 05	
	<b>STAGE-II</b> INSULATION	HAZAL C 35 HAZAL C 39 HAZOLIT SIZ 0,6 CAL-SIL	SADUR 444...GUNDUR 44 GG SADUR 544...GUNDUR 44 GG IZODUR P 05 IZOGUNDUR P 05	
	<b>STAGE-III</b> INSULATION	HAZAL C 39 HAZAL C 42 HAZOLIT SIZ 1,0 CAL-SIL	SADUR 544...GUNDUR 44 GG DURCAST 830...GUNDUR 44 GG IZODUR P 05 IZOGUNDUR P 4	
	<b>STAGE-IV</b> INSULATION	HAZAL C 42 HAZAL C 45 HAZOLIT SIZ 1,0 CAL-SIL	SADUR 544...GUNDUR 44 GG DURCAST 830...GUNDUR 44 GG IZODUR P 05 IZOGUNDUR P 4	
	<b>STAGE-V</b> INSULATION	HAZAL C 45 HAZAL C 50 HAZOLIT SIZ 1,0 CAL-SIL	VIBRADUR 605 ASC SADUR 550...GUNDUR 750 IZODUR P 05 IZOGUNDUR P 4	
	<b>COMBUSTION CHAMBER</b> INSULATION	HAZAL C 50 HAZAL S 55 HAZOLIT SIZ 1,0 CAL-SIL	VIBRADUR 605 ASC... VIBRADUR 30 ASC SADUR 750 .GUNDUR MC 6010 SIC IZODUR P 05 IZOGUNDUR P 4	
	<b>ROW MEAL DUCT</b> INSULATION	CAL-SIL	VIBRADUR 15 ASC VIBRADUR MC 544 IZODUR P 05 IZOGUNDUR P 05 VG	
	<b>INLET CHAMBER</b> INSULATION	HAZAL ASC 30 HAZAL ASC 15 HAZOLIT SIZ 1,2 CAL-SIL	VIBRADUR 30 ASC GUNDUR 4030 SIC IZODUR P 05 IZOGUNDUR P 4	
	<b>MISCELLANEOUS</b>	<b>TERTIARY AIR DUCT</b> INSULATION	HAZAL ASC 5 HAZAL S 55... HAZAL T2AR HAZOLIT SIZ 1,0 CAL-SIL	VIBRADUR 605 ASC GUNDUR MC 7605 ASC IZODUR P 05 IZOGUNDUR P 4
		<b>KILN HOOD</b> INSULATION	HAZAL ASC 30 HAZAL ASC 15 HAZOLIT SIZ 1,2 CAL-SIL	VIBRADUR 30 ASC GUNDUR 4030 SIC IZODUR P 05 VG IZOGUNDUR P 4
<b>COOLER</b> INSULATION		HAZAL ASC 30 HAZAL B 85...C 45 HAZOLIT SIZ 1,0 CAL-SIL	VIBRADUR 30 ASC GUNDUR 4030 SIC...VIBRADUR BCA 85 IZODUR P 05 VG IZOGUNDUR P 4	
<b>ROTARY KILN</b>	<b>INLET ZONE</b>	HAZAL ASC 5	VIBRADUR 605 ASC SADUR 750	
	<b>SECURITY ZONE</b>	HAZAL ASC 5		
	<b>CALSINATING ZONE</b>	HAZAL 15 ASC HAZAL T2AR		
	<b>UPPER TRANSITION ZONE</b>	HAZMAG SP 85		
	<b>SINTERING ZONE</b>	HAZMAG SP 90		
	<b>LOWER TRANSITION ZONE</b>	HAZMAG SP 85		
	<b>OUTLED ZONE</b>	HAZMAG SP 85	VIBRADUR 605 ASC... VIBRADUR 30 ASC SADUR 750, GUNDUR MC 6010 SIC	

# INCINERATOR ROTARY KILN & SECONDARY COMBUSTION CHAMBER



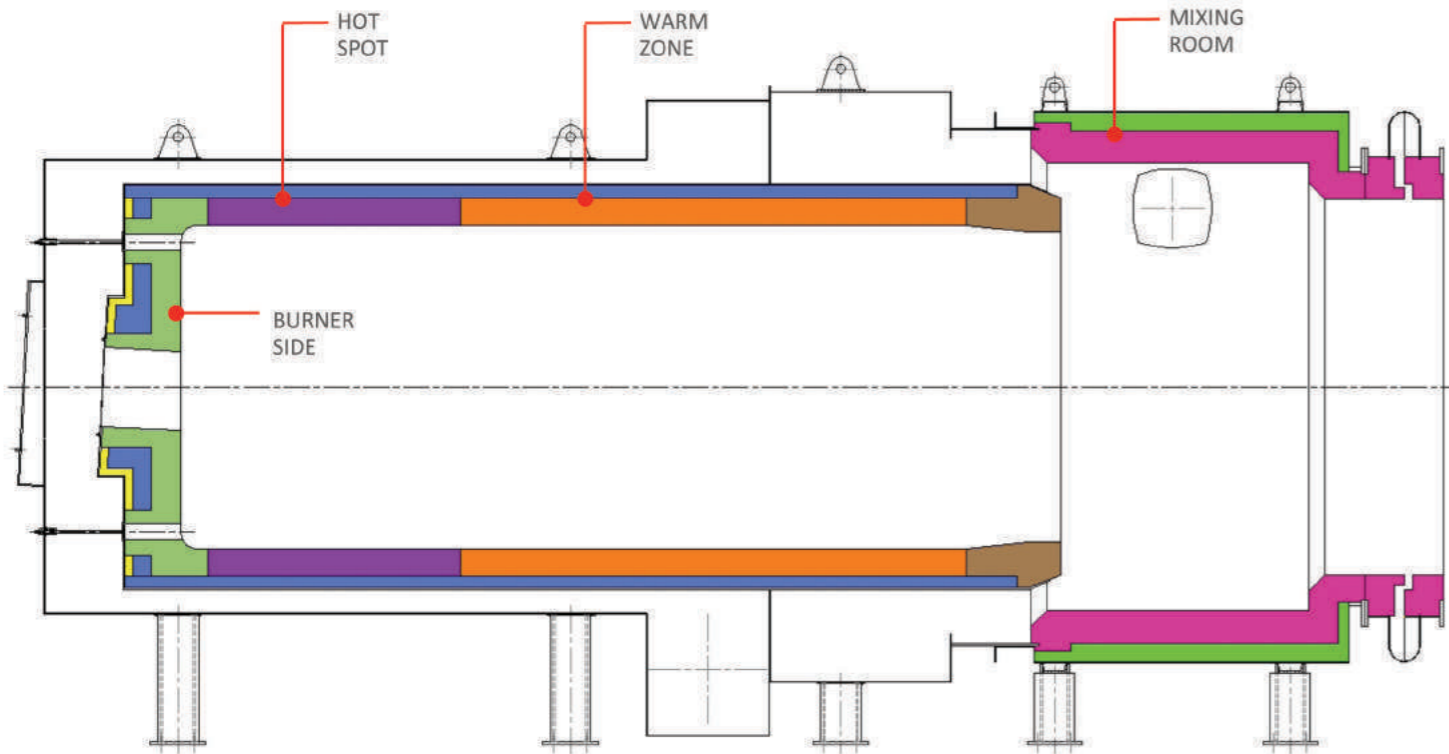
		Application Area		Product Name	
		Bricks	Mixes		
KILN HOOD	WEAR LINING	HAZAL C 50 HAZAL C 42 HAZAL C 39	VIBRADUR 60 A VIBRADUR MC 444 SADUR 544		
	INSULATING	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,00 HAZOLIT SIZ 0,6	IZODUR S4 IZODUR P7 IZODUR P4		
ROTARY KILN	INLETT ZONE	KOREX 85...KOREX 90 HAZAL S 65 HAZAL T2AR...HAZAL T2AR/C	ULTRADUR TCA 87 VIBRADUR TCA 95/CR VIBRADUR 65 AK...VIBRADUR 60 A		
	OUTLETTZONE	KOREX 70 Z...KOREX 65 CR 30 KOREX 85 CR 05...KOREX 85 CR 10 HAZAL GA 90 PT/CR	ULTRADUR TSP99 05 VIBRADUR TCA 99/CR VIBRADUR TCA 95/CR		
SECONDARY COMBUSTION CHAMBER-LOWER PART	LOWER TIP	HAZAL ASC 15...HAZAL ASC 5 HAZAL T2AR/C HAZAL S 55	VIBRADUR C 30 SIC...VIBRADUR 610 ASC VIBRADUR MC 880 VIBRADUR 60 A		
	UPPER PART	HAZAL T2AR HAZAL S 65 HAZAL B 85	VIBRADUR BCA 85 VIBRADUR 65 AK DURCAST 880		
	BENNER AREA	KOREX 90 KOREX95	DURCAST K 9505 VIBRADUR TCA 95...VIBRADUR TCA 98 PLASDUR 95 AS...PLASDUR 90		
	INSULATING	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6	IZODUR S4 IZODUR P7 IZODUR P4		
SECONDARY COMBUSTION CHAMBER-MIDDLEPART	LOWER PART	HAZAL T2AR/C HAZAL S 55 HAZAL B 65	VIBRADUR BCA 80 VIBRADUR 60 A DURCAST 765		
	UPPER PART	HAZAL T2AR/C HAZAL S 55 HAZAL B 65	VIBRADUR BCA 80 VIBRADUR 60 A DURCAST 765		
	INSULATING	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6	IZODUR S4 IZODUR P7 IZODUR P4		
S.C. UPPER PART	WORKING LAYER	HAZAL S 55 HAZAL B 65 HAZAL C 50	VIBRADUR 60A DURCAST 865 SADUR 750 A		
	INSULATING	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6	IZODUR S4 IZODUR P7 IZODUR P4		
QUENCH	LOWER PART	HAZAL S 55 HAZAL B 65 HAZAL C 50	VIBRADUR 60A DURCAST 865 SADUR 750 A		
	UPPER PART	HAZAL S 55 HAZAL B 65 HAZAL C 50	VIBRADUR 60A DURCAST 865 SADUR 750 A		
	INSULATING	HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6	IZODUR S4 IZODUR P7 IZODUR P4		

# COMBUSTION CHAMBER VERTICAL TYPE LINING CONCEPT



Application Area	Product Name	
	Bricks	Mixes
<b>ROOF (BURNER PART)</b>		
<b>WORKING LAYER</b>	KOREX 90 HAZAL SK 65... HAZAL S 60 HAZAL B 85	PLASDUR 95 AS...92 AS PLASDUR 80 AS DURCAST 95O5
1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT SIZ 1,25...HAZOLIT SIZ1,0 HAZOLIT SIZ 1,0...HAZOLIT SIZ 0,6	IZODUR A 4...S 4...IZODUR P 7 IZODUR P 4...S 4 ...IZODUR P05
<b>HOT SPOT</b>		
<b>WORKING LAYER</b>	HAZAL SK 65... HAZAL S60 HAZAL B 85 HAZAL B 65	PLASDUR 80 AS VIBRADUR BCA 85 VIBRADUR MC 865
1.INSULATING LAYER 2.INSULATING LAYER	HAZAL C 35...HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0...HAZOLIT SIZ 0,6	SADUR 444...IZODUR A 8...A 4 IZODUR P 4...S 4 IZODUR P 05
<b>WARM ZONE</b>		
<b>WORKING LAYER</b>	HAZAL S 55 HAZAL C 50/L HAZAL C 45...HAZAL C 42	PLASDUR 60 AS VIBRADUR 50 SADUR 550
1.INSULATING LAYER 2.INSULATING LAYER	HAZAL C 35...HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0...HAZOLIT SIZ 0,6	SADUR 444...IZODUR A8...A4 IZODUR P 4...S 4...IZODUR P 05
<b>CONE and TIP</b>		
<b>WORKING LAYER</b>	HAZAL S 55 HAZAL C 50/L HAZAL C 45...HAZAL C 42	PLASDUR 60 AS VIBRADUR 50 SADUR 550
1.INSULATING LAYER 2.INSULATING LAYER	HAZAL C 35...HAZOLIT SIZ 1,25 HAZOLIT SIZ 1,0...HAZOLIT SIZ 0,6	SADUR 444...IZODUR A 8...A 4 IZODUR P 4...S 4...IZODUR P 05
<b>PIPELINE</b>		
<b>WORKING LAYER</b>	HAZAL C 45...HAZAL C 42 HAZAL C 35	SADUR 544...SADUR 444 GUNDUR 44GG.30 GG
1.INSULATING LAYER 2.INSULATING LAYER	HAZOLIT SIZ 1,0 HAZOLIT SIZ 0,6	IZODUR P 4...P 7 IZODUR P 05...P 05 VG

## COMBUSTION CHAMBER AIR COOLED LINING CONCEPT



Corundum Basis Super Alumina Bricks

## PRODUCT GROUPS & QUALITIES Bricks

Application Area	Product Name	
	Bricks	Mixes
<b>BURNER SIDE</b>		
<b>WORKING LAYER</b>	KOREX 90	PLASDUR 95 AS...92 AS
<b>INSULATING LAYER</b>	HAZAL SK 65...S 60...HAZAL B 85	PLASDUR 80 AS...DURCAST 9505
<b>HOT SPOT</b>	HAZALIT SIZ 1,0...HAZALIT SIZ 0,6	IZODUR P 4...S 4...IZODUR P 05
<b>WORKING LAYER</b>	HAZAL SK 65... HAZAL S 60	PLASDUR 80 AS
<b>INSULATING LAYER</b>	HAZAL B 85...HAZAL B 65	VIBRADUR BCA 85...VIB. MC 865
<b>WARM ZONE</b>	HAZAL C 35...HAZALIT SIZ 1,25	SADUR 444...IZODUR A 8...A 4
<b>WORKING LAYER</b>	HAZAL S 55	PLASDUR 60 AS
<b>INSULATING LAYER</b>	HAZAL C 50/L...HAZAL C 45	VIBRADUR 50...SADUR 550
<b>MIXING ROOM</b>	HAZAL C 35...HAZALIT SIZ 1,25	SADUR 444...IZODUR A 8...A 4
<b>WORKING LAYER</b>	HAZAL C 45...HAZAL C 42	SADUR 544...SADUR 444
<b>INSULATING LAYER</b>	HAZAL C 35	GUNDUR 44 GG...30 GG
	HAZALIT SIZ 0,6	IZODUR P 4...P 7



Andalusite and Mullite Basis Bricks

## ALUMINA BRICKS

Product Name	Chemical Composition (%)			Physical Properties			
	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	Bulk Density g/cm <sup>3</sup>	App. Porosity vol. %	C.C. Strength kg/cm <sup>2</sup>	R.U.L Ta °C
HAZAL C 25/A	25	67	1,1	2,15	14	550	>1300
HAZAL C 30	31	62	1,4	2,17	16	450	>1300
HAZAL C 35	35	59	1,4	2,17	16	400	>1300
HAZAL C 35/A	35	61	1,1	2,17	14	600	>1300
HAZAL C 39	39	55	1,4	2,20	19	400	>1350
HAZAL C 40	40	55	2,0	2,2	19	400	>1350
HAZAL C 42	42	52	1,8	2,20	19	400	>1350
HAZAL C 42/L	42	52	1,0	2,25	18	450	>1450

## HIGH ALUMINA BRICKS

### ANDALUSITE and MULLITE BASIS BRICKS

Product Name	Chemical Composition (%)			Physical Properties			
	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	Bulk Density g/cm <sup>3</sup>	App. Porosity vol. %	C.C. Strength kg/cm <sup>2</sup>	R.U.L Ta °C
HAZAL S 55	55	42	1,2	2,50	17	500	>1500
HAZAL S 55/P	55	42	1,0	2,5	15	800	>1500
HAZAL S 60	60	37	1,1	2,55	15	550	>1550
HAZAL S 65	65	32	1,0	2,60	15	650	>1580
HAZAL S 70	70	27	0,8	2,65	16	500	>1600
HAZAL FM 75	75	20	0,4	2,75	14	800	>1700

Product Name	Chemical Composition (%)				Physical Properties			
	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	Bulk Density g/cm <sup>3</sup>	App Porosity vol. %	C.C. Strength kg/cm <sup>2</sup>	R.U.L Ta °C
HAZAL C 45	45	49	1,4		2,25	19	400	>1380
HAZAL C 45/L	45	49	1,0		2,25	18	450	>1450
HAZAL C 50	50	44	1,8		2,30	19	400	>1400
HAZAL C 50/L	50	44	1,0		2,33	18	450	>1450
HAZAL B 55	55	40	1,9		2,45	18	500	>1400
HAZAL B 60	60	35	2,1		2,50	18	550	>1420
HAZAL B 65	65	30	2,2		2,55	18	550	>1450
HAZAL BS 65 A30	65	29	1,8		2,60	18	550	>1500
HAZAL B 70	70	25	2,1		2,65	18	600	>1450
HAZAL B 75	75	20	2,2		2,70	18	650	>1470
HAZAL B 80	80	15	2,2		2,75	18	650	>1500
HAZAL B 85	85	11	1,3		2,75	19	650	>1500
HAZAL B 85Cr	81	11	1,3	4,0	2,83	18	700	>1560
HAZAL B 85/PF	83	11	1,1		2,85	16	800	>1560
HAZAL GA 90 PT/CR	84	9	0,6	4,0	2,90	16	800	>1560
HAZAL GA 90 PT	87	10	0,8		2,85	16	600	>1650
HAZAL GA 90 PF	87	10	0,8		2,90	16	600	>1650

### ABRASION and ALKALI RESISTENT BRICKS

Product Name	Chemical Composition (%)			Residual Carbon %	Physical Properties			
	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	SiC		Bulk Density g/cm <sup>3</sup>	App Porosity vol.%	C.C. Strength kg/cm <sup>2</sup>	R.U.L Ta °C
HAZAL ASC	75		7	11	2,85	6	500	
HAZAL ASC 5	48	44	5		2,35	18	650	1700
HAZAL ASC 10	55	33	10		2,60	14	850	1525
HAZAL ASC 15	51	31	15		2,55	15	600	1700
HAZAL ASC 30	43	24	30		2,65	14	600	1700
HAZAL T2AR	58	40			2,65	9	1200	1700
HAZAL T2AR/C	50	47			2,50	11	800	1550



## CORUNDUM BASIS SUPER ALUMINA BRICKS

Product Name	Chemical Composition (%)					Physical Properties			
	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	Cr <sub>2</sub> O <sub>3</sub>	ZrO <sub>2</sub>	Bulk Density g/cm <sup>3</sup>	App. Porosity vol. %	C.C. Strength kg/cm <sup>2</sup>	R.U.L Ta °C
KOREX 70 Z	70	9	0,3	--	20	3,15	16	800	1660
KOREX 65 CR 30	63	2	0,2	29	3	3,40	16	750	1600
KOREX 85 CR 05	83	8	0,4	4,5	1,5	3,20	15	700	1600
KOREX 85 CR 10	83	2	0,2	9	3	3,30	15	700	1600
KOREX 85	85	12	0,2		1,1	3,00	16	650	1600
KOREX 90	90	8	0,6			3,00	17	650	1600
KOREX 95	95	3	0,4			3,00	17	700	1720

## INSULATION BRICKS

Product Name	Chemical Composition (%)					Physical Properties				
	Al <sub>2</sub> O <sub>3</sub>	CaO	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	Alkali	Bulk Density g/cm <sup>3</sup>	App. Porosity vol. %	C.C. Strength kg/cm <sup>2</sup>	Service Temperature °C	Thermal Conductivity W/mK (1000°C)
HAZOLIT SIZ 0,6	15		82			0,6-0,7	50-60	8-12	900	0,16+0,00008*t
HAZOLIT SIZ 0,8	60	0,5		1,2	3,4	0,8-0,9	50-60	40-50	1.250	0,3+0,00008*t
HAZOLIT SIZ 1,0	33	0,4	60,0	2,2	0,6	0,8-1,0	40-45	40-60	1.250	0,35+0,00008*t
HAZOLIT SIZ 1,25	35	0,3		2,1	0,4	1,2-1,3	40-45	40-60	1.250	0,4+0,00008*t

## FIRED MAGNESITE BRICKS

Product Name	Chemical Composition (%)					Physical Properties			
	MgO	CaO	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	Bulk Density g/cm <sup>3</sup>	App. Porosity vol. %	C.C. Strength kg/cm <sup>2</sup>	R.U.L Ta °C
HAZMAG 90	90	2,1	0,5	2,7	1,0	2,90	19	500	1650
HAZMAG 92	92	2,1	0,3	2,0	1,0	2,95	19	500	1650
HAZMAG 95	95	2,2	0,3	1,5	0,8	3,00	17	500	1700
HAZMAG 97	97	1,4	0,1	0,8	0,6	3,06	15	500	1740

## FIRED CHROME - MAGNESITE BRICKS

Product Name	Chemical Composition (%)						Physical Properties			
	MgO	CaO	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Fe <sub>2</sub> O <sub>3</sub>	CrO <sub>2</sub>	Bulk Density g/cm <sup>3</sup>	App. Porosity vol. %	C.C. Strength kg/cm <sup>2</sup>	R.U.L Ta °C
KROMAG 50	50	2,5	6	1,8	10	24	2,98	20	450	1700
KROMAG 60	61	2,5	5,3	1,6	8,4	21	2,98	20	350	1720
KROMAG 80	80	1,8	3,6	1,0	5,5	8	3,00	18	400	1700
KROMAG 50/F	50	2,5	6,0	1,2	11,0	24	3,05	18	550	1720
KROMAG 55/F	55	2,5	6,2	1,1	11,5	19	3,1	18	550	1720
KROMAG 60/F	63	1,0	6,0	1,0	11	18	3,20	15	600	1740
KROMAG 70/F	70	2,3	5,2	1,0	6,5	15	3,15	17	350	1740

## RESIN BONDED MAGNESIA-CARBON BRICKS

Product Name	Chemical Composition (%)			Residual Carbon %	Physical Properties		
	MgO	CaO	SiO <sub>2</sub>		Bulk Density g/cm <sup>3</sup>	App. Porosity vol. %	C.C. Strength kg/cm <sup>2</sup>
ERMAG 8027	98	1,3	0,4	14	3,02	4	400
ERMAG 8026	98	1,3	0,4	12	3,02	4	400
ERMAG 8025	98	1,3	0,4	10	3,03	4	450
ERMAG 8024	98	1,3	0,4	8	3,03	4	450
ERMAG 8023	98	1,3	0,4	6	3,05	4	450
ERMAG 7027	97,5	1,3	0,65	14	3,02	4	400
ERMAG 7026	97,5	1,3	0,65	12	3,02	4	400
ERMAG 7025	97,5	1,3	0,65	10	3,03	4	450
ERMAG 7024	97,5	1,3	0,65	8	3,03	4	450
ERMAG 7023	97,5	1,3	0,65	6	3,05	4	450
ERMAG 6027	96,5	1,5	0,85	14	3,01	5	450
ERMAG 6026	96,5	1,5	0,85	12	3,01	5	450
ERMAG 6025	96,5	1,5	0,85	10	3,02	5	450
ERMAG 6024	96,5	1,5	0,85	8	3,02	5	450
ERMAG 6023	96,5	1,5	0,85	6	3,03	5	450
ERMAG 6107	96,2	2	1,0	14	3	5	400
ERMAG 6153	96,2	2	1,0	6	3,02	5	400
ERMAG 6154	96,2	2	1,0	8	3,02	5	400
ERMAG 6155	96,2	2	1,0	10	3	5	400
ERMAG 6156	96,2	2	1,0	12	3	5	400
ERMAG 6157	96,2	2	1,0	14	3	5	400
ERMAG 5027	96	2	1,2	14	3,03	5	450
ERMAG 5026	96	2	1,2	12	3,03	5	450
ERMAG 5025	96	2	1,2	10	3,02	5	450
ERMAG 5024	96	2	1,2	8	3,02	5	450
ERMAG 5023	96	2	1,2	6	3,05	5	450
ERMAG 5203	96	2	1,2	6	3,01	5	400
ERMAG 5204	96	2	1,2	8	3,01	5	400
ERMAG 5205	96	2	1,2	10	3	5	400
ERMAG 5206	96	2	1,2	12	3	5	400
ERMAG 5207	96	2	1,2	14	3	5	400
ERMAG 5303	96	2	1,2	6	3	5	400
ERMAG 5304	96	2	1,2	8	3	5	350
ERMAG 5305	96	2	1,2	10	3	5	350
ERMAG 5306	96	2	1,2	12	3	5	350
ERMAG 5307	96	2	1,2	14	3	5	350
ERMAG 5004	96	2	1,2	8	2,96	5	350

## RESIN BONDED ALUMINA-MAGNESIA CARBON BRICKS

Product Name	Chemical Composition (%)			Residual Carbon %	Physical Properties		
	MgO	Al <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>		Bulk Density g/cm <sup>3</sup>	App. Porosity vol. %	C.C. Strength kg/cm <sup>2</sup>
ERSPIN 8003	6	89	1,5	6	3,25	6	500
ERSPIN 7003	8	87	1,9	8	3,10	6	450
ERSPIN 6203	10	72	2	10	3,00	6	450

## RESIN BONDED DOLOMITE BRICKS

Product Name	Chemical Analysis						Physical Properties		
	MgO	CaO	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	C	Bulk Density g/cm <sup>3</sup>	App. Porosity vol. %	C.C. Strength kg/cm <sup>2</sup>
ERDOL 005 R	37	61	0,5	0,5	0,5	8	2,75	10,5	650
ERDOL 010 R	37	61	0,5	0,5	0,5	4	2,77	10	700
ERDOL 013 R	37	61	0,5	0,5	0,5	6	2,77	10	650
ERDOL 021 R	41	57	0,5	0,5	0,5	4	2,82	9	750
ERDOL 022 R	48	50	0,5	0,5	0,5	4	2,84	9	750
ERDOL 024 R	48	50	0,5	0,5	0,5	7	2,83	9,3	700



Resin Bonded Magnesium Carbon Bricks

**STANDARD BRICK SHAPES AND MEASUREMENTS**



Abrasion and Alkali Resistant Bricks

## RECTANGULAR SHAPES



Alumina and High Alumina Bricks

Shape	Dimensions			Volume dm <sup>3</sup>
	l	b	h	
<b>Standart Squares</b>				
FN	220	110	60	1,452
NF1	230	114	64	1,678
NF2	250	124	64	1,984
NF3	300	150	64	2,880
NF1-76	230	114	76	1,993
NF2-76	250	124	76	2,356
NF3-76	300	150	76	3,420
<b>Bonders</b>				
B1	187	124	155	3,59
B2	210	187	155	6,08
B3	340	210	88	6,28
1B	230	172	64	2,53
2B	250	187	64	2,99
3B	300	225	64	4,32
1B-76	230	172	76	3,01
2B-76	250	187	76	3,55
3B-76	300	225	76	5,13
<b>Long Brick</b>				
1L	345	114	64	2,52
2L	375	124	64	2,98
3L	450	150	64	4,32
1L-76	345	114	76	2,99
2L-76	375	124	76	3,53
3L-76	450	150	76	5,13
<b>Long Borders</b>				
1LB	345	172	64	3,79776
2LB	375	187	64	4,49
3LB	450	225	64	6,48
1LB-76	345	172	76	4,51
2LB-76	375	187	76	5,33
3LB-76	450	225	76	7,70
<b>Plates</b>				
NF1-32	230	114	32	0,83904
NF2-32	250	124	32	0,99
NF3-32	300	150	32	1,44
NF1-38	230	114	38	1,00
NF2-38	250	124	38	1,18
NF3-38	300	150	38	1,71
<b>Double Straights Bricks</b>				
1D	230	230	64	3,3856
2D	250	250	64	4,00
3D	300	300	64	5,76
1D-76	230	230	76	4,02
2D-76	250	250	76	4,75
3D-76	300	300	76	6,84



# END ARCH BRICKS

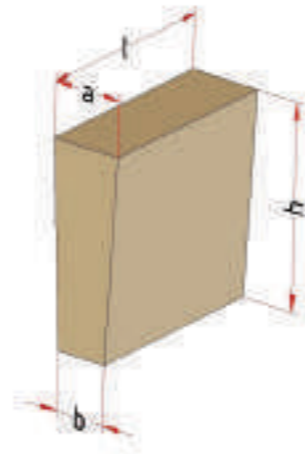
Shape	Dimensions					Volume dm³	Radius r(mm)
	a	b	h	l	k(a-b)		
1G4	66	62	230	114	4	1,68	3,681
1G6	67	61	230	114	6	1,68	2,416
1G10	69	59	230	114	10	1,68	1,404
1G16	72	56	230	114	16	1,68	836
1G24	76	52	230	114	24	1,68	520
1G38	83	45	230	114	38	1,68	288
1G50	89	39	230	114	50	1,68	193
+1G4	78	74	230	114	4	1,99	4,371
+1G6	79	73	230	114	6	1,99	2,876
+1G10	81	71	230	114	10	1,99	1,681
+1G16	84	68	230	114	16	1,99	1,009
+1G24	88	64	230	114	24	1,99	636
+1G38	95	57	230	114	38	1,99	362
+1G50	101	51	230	114	50	1,99	250
+1GG4	78	74	230	230	4	3,39	3,681
1GG6	67	61	230	230	6	3,39	2,416
1GG10	69	59	230	230	10	3,39	1,404
1GG16	72	56	230	230	16	3,39	836
1GG24	76	52	230	230	24	3,39	520
1GG38	83	45	230	230	38	3,39	288
1GG50	89	39	230	230	50	3,39	193
+1GG4	78	74	230	230	4	3,39	4,371
+1GG6	79	73	230	230	6	3,39	2,876
+1GG10	81	71	230	230	10	3,39	1,681
+1GG16	84	68	230	230	16	3,39	1,009
+1GG24	88	64	230	230	24	3,39	636
+1GG38	95	57	230	230	38	3,39	362
+1GG50	101	51	230	230	50	3,39	250
1GB4	66	62	230	172	4	2,53	3,681
1GB10	69	59	230	172	10	2,53	1,404
1GB16	72	56	230	172	16	2,53	836
1GB24	76	52	230	172	24	2,53	520
1GB38	83	45	230	172	38	2,53	288
1GB50	89	39	230	172	50	2,53	193
+1GB4	78	74	230	172	4	3,01	4,371
+1GB10	81	71	230	172	10	3,01	1,681
+1GB16	84	68	230	172	16	3,01	1,009
+1GB24	88	64	230	172	24	3,01	636
+1GB38	95	57	230	172	38	3,01	362
+1GB50	101	51	230	172	50	3,01	250



Shape	Dimensions					Volume dm³	Radius r(mm)
	a	b	h	l	k(a-b)		
2G4	66	62	250	124	4	1,99	4,001
2G6	67	61	250	124	6	1,99	2,626
2G10	69	59	250	124	10	1,99	1,526
2G16	72	56	250	124	16	1,99	908
2G24	76	52	250	124	24	1,99	565
2G38	83	45	250	124	38	1,99	313
2G50	89	39	250	124	50	1,99	209
2G4	78	74	250	124	4	2,36	4,751
2G6	79	73	250	124	6	2,36	3,126
2G10	81	71	250	124	10	2,36	1,827
2G16	84	68	250	124	16	2,36	1,096
2G24	88	64	250	124	24	2,36	691
2G38	95	57	250	124	38	2,36	393
2G50	101	51	250	124	50	2,36	270
+2GG4	66	62	250	250	4	4,00	4,001
+2GG6	67	61	250	250	6	4,00	2,626
+2GG10	69	59	250	250	10	4,00	1,526
+2GG16	72	56	250	250	16	4,00	908
+2GG24	76	52	250	250	24	4,00	565
+2GG38	83	45	250	250	38	4,00	313
+2GG50	89	39	250	250	50	4,00	209
+2GG4	78	74	250	124	4	4,75	4,751
+2GG6	79	73	250	124	6	4,75	3,126
+2GG10	81	71	250	124	10	4,75	1,827
+2GG16	84	68	250	124	16	4,75	1,096
+2GG24	88	64	250	124	24	4,75	691
+2GG38	95	57	250	124	38	4,75	393
+2GG50	101	51	250	124	50	4,75	270
2GB4	66	62	250	187	4	2,99	4,001
2GB6	67	61	250	187	6	2,99	2,626
2GB10	69	59	250	187	10	2,99	1,526
2GB16	72	56	250	187	16	2,99	908
2GB24	76	52	250	187	24	2,99	565
2GB38	83	45	250	187	38	2,99	313
2GB50	89	39	250	187	50	2,99	209
+2GB4	78	74	250	187	4	2,99	4,751
+2GB6	79	73	250	187	6	2,99	3,126
+2GB10	81	71	250	187	10	2,99	1,827
+2GB16	84	68	250	187	16	2,99	1,096
+2GB24	88	64	250	187	24	2,99	691
+2GB38	95	57	250	187	38	2,99	393
+1GB50	101	51	250	187	50	2,99	270

## END ARCH BRICKS

Shape	Dimensions					Volume dm <sup>3</sup>	Radius r(mm)
	a	b	h	l	k(a-b)		
G081	90	65	300	150	25	3,49	807
G11	85	65	300	150	20	3,38	1,007
G21	75	65	300	150	10	3,15	2,011
G31	71	65	300	150	6	3,06	3,351
G51	69	65	300	150	4	3,02	5,026
G082	96	65	375	150	31	4,53	813
G12	90	65	375	150	25	4,36	1,007
G32	73	65	375	150	8	3,88	3,141
G52	70	65	375	150	5	3,80	5,026
GB081	90	65	300	225	25	5,23	807
GB11	85	65	300	225	20	5,06	1,007
GB21	75	65	300	225	10	4,73	2,011
GB31	71	65	300	225	6	4,59	3,351
GB51	69	65	300	225	4	4,52	5,026
GB082	96	65	375	225	31	6,79	813
GB12	90	65	375	225	25	6,54	1,007
GB32	73	65	375	225	8	5,82	3,141
GB52	70	65	375	225	5	5,70	5,026



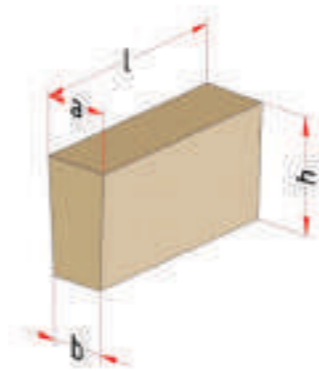
## SIDE ARCH BRICKS

Shape	Dimensions					Volume dm <sup>3</sup>	Radius r(mm)
	a	b	h	l	k(a-b)		
1H6	66	61	114	230	6	1,68	1,199
1H10	69	59	114	230	10	1,68	698
1H16	72	56	114	230	16	1,68	417
1H24	76	52	114	230	24	1,68	262
1H38	83	45	114	230	38	1,68	149
1H50	89	39	114	230	50	1,68	102
+1H6	79	73	114	230	6	1,99	1,427
+1H10	81	71	114	230	10	1,99	835
+1H16	84	68	114	230	16	1,99	504
+1H24	88	64	114	230	24	1,99	320
+1H38	95	57	114	230	38	1,99	187
+1H50	101	51	114	230	50	1,99	132
2H6	67	61	124	250	6	1,98	1,304
2H10	69	59	124	250	10	1,98	759
2H16	72	56	124	250	16	1,98	453
2H24	76	52	124	250	24	1,98	284
2H38	83	45	124	250	38	1,98	161
2H50	89	39	124	250	50	1,98	110
+2H6	79	73	124	250	6	2,36	1,552
+2H10	81	71	124	250	10	2,36	908
+2H16	84	68	124	250	16	2,36	547
+2H24	88	64	124	250	24	2,36	347
+2H38	95	57	124	250	38	2,36	201
+2H50	101	51	124	250	50	2,36	142
3H6	67	61	150	300	6	2,88	1,576
3H10	69	59	150	300	10	2,88	917
3H16	72	56	150	300	16	2,88	547
3H24	76	52	150	300	24	2,88	342
3H38	83	45	150	300	38	2,88	191
3H50	89	39	150	300	50	2,88	130
+3H6	79	73	150	300	6	3,42	1,877
+3H10	81	71	150	300	10	3,42	1,098
+3H16	84	68	150	300	16	3,42	660
+3H24	88	64	150	300	24	3,42	418
+3H38	95	57	150	300	38	3,42	240
+3H50	101	51	150	300	50	3,42	168



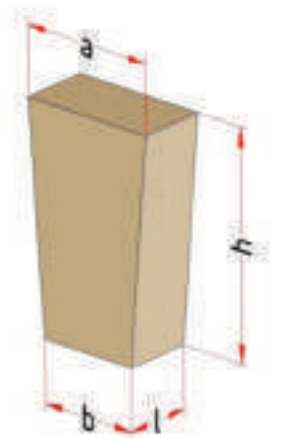
## SIDE ARCH BRICKS

Shape	Dimensions					Volume dm <sup>3</sup>	Radius r(mm)
	a	b	h	l	k(a-b)		
1HL6	67	61	114	345	6	2,52	1,199
1HL10	69	59	114	345	10	2,52	698
1HL16	72	56	114	345	16	2,52	417
1HL24	76	52	114	345	24	2,52	262
1HL38	83	45	114	345	38	2,52	149
1HL50	89	39	114	345	50	2,52	102
+1HL6	79	73	114	345	6	2,99	1,427
+1HL10	81	71	114	345	10	2,99	835
+1HL16	84	68	114	345	16	2,99	504
+1HL24	88	64	114	345	24	2,99	320
+1HL38	95	57	114	345	38	2,99	187
+1HL50	101	51	114	345	50	2,99	132
2HL6	67	61	124	375	6	2,98	1,304
2HL10	69	59	124	375	10	2,98	759
2HL16	72	56	124	375	16	2,98	453
2HL24	76	52	124	375	24	2,98	284
2HL38	83	45	124	375	38	2,98	161
2HL50	89	39	124	375	50	2,98	110
+2HL6	79	73	124	375	6	3,534	1,552
+2HL10	81	71	124	375	10	3,534	908
+2HL16	84	68	124	375	16	3,534	547
+2HL24	88	64	124	375	24	3,534	347
+2HL38	95	57	124	375	38	3,534	201
+2HL50	101	51	124	375	50	3,534	142
3HK6	67	61	150	200	6	1,92	1,576
3HK10	69	59	150	200	10	1,92	917
3HK16	72	56	150	200	16	1,92	547
3HK24	76	52	150	200	24	1,92	342
3HK38	83	45	150	200	38	1,92	191
3HK50	89	39	150	200	50	1,92	130
+3HK6	79	73	150	200	6	2,28	1,877
+3HK10	81	71	150	200	10	2,28	1,098
+3HK16	84	68	150	200	16	2,28	660
+3HK24	88	64	150	200	24	2,28	418
+3HK38	95	57	150	200	38	2,28	240
+3HK50	101	51	150	200	50	2,28	168



## LARGE END ARCH BRICKS

Shape	Dimensions					Volume dm <sup>3</sup>	Radius r(mm)
	a	b	h	l	k(a-b)		
1Q/B	179	165	230	64	14	2,53	2,749
1Q/10	119	109	230	64	10	1,68	2,556
1Q/14	121	107	230	64	14	1,68	1,794
1Q/20	124	104	230	64	20	1,68	1,224
1Q/28	128	100	230	64	28	1,68	844
1Q/50	139	89	230	64	50	1,68	428
+1Q/B	179	165	230	76	14		2,749
+1Q/10	119	109	230	76	10		2,556
+1Q/14	121	107	230	76	14		1,794
+1Q/20	124	104	230	76	20		1,224
+1Q/28	128	100	230	76	28		844
+1Q/50	139	89	230	76	50		428
2Q/B	192	182	250	64	10	2,99	4,604
2Q/10	129	119	250	64	10	1,98	3,028
2Q/14	131	117	250	64	14	1,98	2,128
2Q/20	134	114	250	64	20	1,98	1,455
2Q/28	138	110	250	64	28	1,98	1,006
2Q/50	149	99	250	64	50	1,98	515
+2Q/B	192	182	250	76	10	2,36	4,604
+2Q/10	129	119	250	76	10	2,36	3,028
+2Q/14	131	117	250	76	14	2,36	2,128
+2Q/20	134	114	250	76	20	2,36	1,455
+2Q/28	138	110	250	76	28	2,36	1,006
+2Q/50	149	99	250	76	50	2,36	515
Q081	152	110	300	64	42	2,52	808
Q151	132	110	300	64	22	2,32	1,531
Q31	121	110	300	64	11	2,22	3,057
Q51	117	110	300	64	7	2,18	4,801
Q1	116	110	300	64	6	2,17	5,601
Q71	115	110	300	64	15	2,16	2,243
QB1	175	165	300	64	10	3,26	5,013
+Q081	152	110	300	76	42	2,99	808
+Q151	132	110	300	76	22	2,76	1,531
+Q31	121	110	300	76	11	2,63	3,057
+Q51	117	110	300	76	7	2,59	4,801
+Q1	116	110	300	76	6	2,58	5,601
+Q71	115	110	300	76	15	2,57	2,243
+QB1	175	165	300	76	10	3,88	5,013



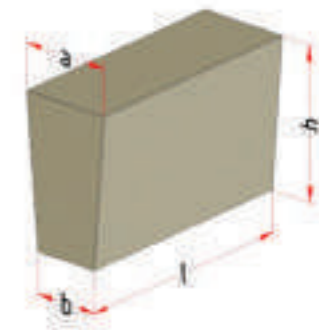
## LARGE END ARCH BRICKS

Shape	Dimensions					Volume dm <sup>3</sup>	Radius r(mm)
	a	b	h	l	k(a-b)		
Q 52	118	110	375	64	8	2,74	5,251
Q 62	117	110	375	64	7	2,72	6,001
Q 72	116	110	375	64	6	2,71	7,001
Q B2	177	165	375	64	12	4,10	5,222
+Q 52	118	110	375	76	8	3,25	5,251
+Q 62	117	110	375	76	7	3,23	6,001
+Q 72	116	110	375	76	6	3,22	7,001
+Q B2	177	165	375	76	12	4,87	5,222
Q 53	120	110	450	64	10	3,31	5,041
Q 63	118	110	450	64	8	3,28	6,301
Q 73	117	110	450	64	7	3,27	7,201
Q B3	180	165	450	64	15	4,97	5,013
+Q 53	120	110	450	76	10	3,93	5,041
+Q 63	118	110	450	76	8	3,90	6,301
+Q 73	117	110	450	76	7	3,88	7,201
+Q B3	180	165	450	76	15	5,90	5,013
E / 08	158	110	350	64	48	3,00	824
E / 10	145	110	350	64	35	2,86	1,126
E / 15	136	110	350	64	26	2,76	1,512
E / 20	129	110	350	64	19	2,68	2,066
E / 30	123	110	350	64	13	2,61	3,018
+E / 08	158	110	350	76	48	3,56	824
+E / 10	145	110	350	76	35	3,39	1,126
+E / 15	136	110	350	76	26	3,27	1,512
+E / 20	129	110	350	76	19	3,18	2,066
+E / 30	123	110	350	76	13	3,10	3,018



## LADLE BRICKS P-FORMAT

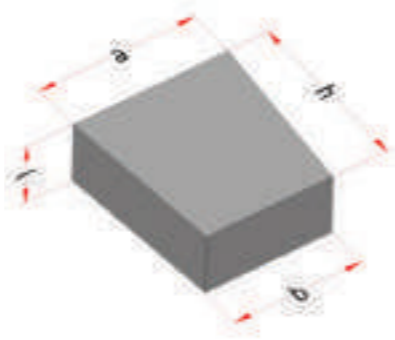
Shape	Dimensions					Volume dm <sup>3</sup>	Radius r(mm)
	a	b	h	l	k(a-b)		
1P0	125	125	90	250		2,81	
1P8	129	121	90	250	8	2,81	1,384
1P18	134	116	90	250	18	2,81	590
1P26	138	112	90	250	26	2,81	395
1P37	143	106	90	250	37	2,80	263
1P8-2/3	86	78	90	250	8	1,85	
1P8-3/4	97	89	90	250	8	2,09	
2P0	125	125	124	250		3,88	
2P10	130	120	124	250	10	3,88	1,513
2P24	137	113	124	250	24	3,88	594
2P10-2/3	87	77	124	250	10	2,54	
2P10-3/4	98	88	124	250	10	2,88	
3P0	100	100	155	250		3,88	
3P8	104	96	155	250	8	3,88	1,899
3P10	105	95	155	250	10	3,88	1,504
3P20	110	90	155	250	20	3,88	713
3P26	113	87	155	250	26	3,88	525
3P10-2/3	70	60	155	250	10	2,52	
3P10-3/4	79	69	155	250	10	2,87	
4P0	100	100	187	250		4,68	
4P8	104	96	187	250	8	4,68	2,291
4P12	106	94	187	250	12	4,68	1,496
4P22	111	89	187	250	22	4,68	8
4P12-2/3	71	59	187	250	12	3,04	
4P12-3/4	80	68	187	250	12	3,46	
5P0	100	100	220	250		5,50	
5P8	104	96	220	250	8	5,50	2,695
5P16	108	92	220	250	16	5,50	1,293
5P22	111	89	220	250	22	5,50	910
5P16-2/3	72	56	220	250	16	3,52	
5P16-3/4	81	65	220	250	16	4,02	
6P0	100	100	250	250		6,25	
6P10	105	92	250	250	10	6,25	2,425
6P18	109	87	250	250	18	6,25	1,292
6P26	113	82	250	250	26	6,25	856
6P10-2/3	70	60	250	250	10	4,06	
6P10-3/4	79	69	250	250	10	4,63	
7P0	100	100	280	250		7,00	
7P12	106	94	280	250	12	7,00	2,240
7P18	109	91	280	250	18	7,00	1,447





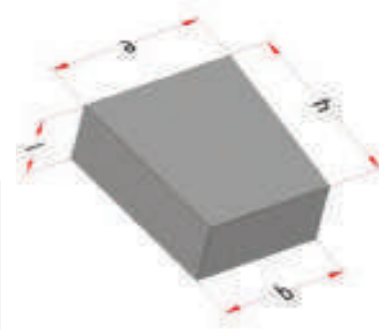
## LADLE BRICKS MINI KEY

Shape	Dimensions					Volume dm³	Radius r(mm)
	a	b	h	i	k(a-b)		
MK 4/0	150	150	101,6	100	0	1,52	
MK 4/6	153	147	101,6	100	6	1,52	2,496
MK 4/12	156	144	101,6	100	12	1,52	1,229
MK 4/20	160	140	101,6	100	20	1,52	726
MK 5/0	150	150	127	100	0	1,91	
MK 5/8	154	146	127	100	8	1,91	2,324
MK 5/20	160	140	127	100	20	1,91	901
MK 5/32	166	134	127	100	32	1,91	549
MK 5/20 120K	130	110	127	100	20	1,91	708
MK 6/0	150	150	152,4	100	0	2,29	
MK 6/8	154	146	152,4	100	8	2,29	2,787
MK 6/13	157	144	152,4	100	13	2,29	1,696
MK 6/20	160	140	152,4	100	20	2,29	1,077
MK 6/30	165	135	152,4	100	30	2,29	700
MK 6/40	170	130	152,4	100	40	2,29	513
MK 6/20 120K	130	110	152,4	100	20	1,83	846
MK 7/0	150	150	177,8	100	0	2,67	
MK 7/8	154	146	177,8	100	8	2,67	3,251
MK 7/13	157	144	177,8	100	13	2,68	1,976
MK 7/16	158	142	177,8	100	16	2,67	1,586
MK 7/20	160	140	177,8	100	20	2,67	1,254
MK 7/30	165	135	177,8	100	30	2,67	812
MK 7/40	170	130	177,8	100	40	2,67	593
MK 7/20 120K	130	110	177,8	100	20	2,13	985
MK 8/0	150	150	203,2	100	0	3,05	
MK 8/8	154	146	203,2	100	8	3,05	3,714
MK 8/16	157	144	203,2	100	16	3,06	1,836
MK 8/20	160	140	203,2	100	20	3,05	1,431
MK 8/30	165	135	203,2	100	30	3,05	925
MK 8/40	170	130	203,2	100	40	3,05	674
MK 9/0	150	150	228,6	100	0	3,43	
MK 9/8	154	146	228,6	100	8	3,43	4,178
MK 9/16	157	144	228,6	100	16	3,43	2,064
MK 9/30	165	135	228,6	100	30	3,43	1,039
MK 9/40	170	130	228,6	100	40	3,43	755
MK 9/50	175	125	228,6	100	50	3,43	586
25/0	150	150	250	100	0	3,75	
25/8	154	146	250	100	8	3,75	4,569
25/16	158	142	250	100	16	3,75	2,225
25/30	165	135	250	100	30	3,75	1,134
25/60	180	120	250	100	60	3,75	515
30/0	150	150	300	100	0	4,50	
30/8	154	146	300	100	8	4,50	4,569
30/20	160	140	300	100	20	4,50	2,225
30/40	170	130	300	100	40	4,50	1,134
30/70	185	115	300	100	70	4,50	515



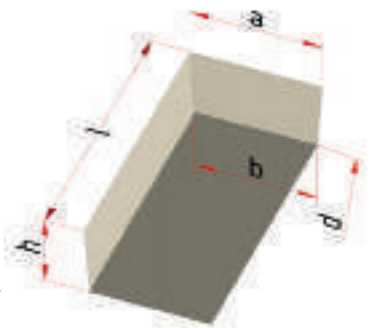
## LADLE BRICKS RADIAL KEY

Shape	Dimensions					Volume dm³	Radius r(mm)
	a	b	h	i	k(a-b)		
12/11-10	211	110	114	100	11	2,57	2,282
12/21-10	221	110	114	100	21	2,63	1,207
12/33-10	233	110	114	100	33	2,71	784
12/50-10	250	165	114	100	50	2,81	539
15/13-10	213	200	150	100	13	3,10	2,308
15/25-10	225	200	150	100	25	3,19	1,200
15/40-10	240	200	150	100	40	3,30	750
15/60-10	260	200	150	100	60	3,45	540
18/16-10	216	200	180	100	16	3,74	2,250
18/30-10	230	200	180	100	30	3,87	1,200
18/48-10	248	200	180	100	48	4,03	750
18/72-10	272	200	180	100	72	4,25	540
22/19-10	219	200	220	100	19	4,61	2,300
22/37-10	237	200	220	100	37	4,81	1,200
22/59-10	259	200	220	100	59	5,05	750
25/16-10	216	200	250	100	16	5,20	3,131
25/30-10	230	200	250	100	30	5,38	1,670
25/16-10_2/3	149	133	250	100	16	3,53	2,087
25/30-10_2/3	163	133	250	100	30	3,71	1,119
25/16-10_3/4	166	150	250	100	16	3,95	2,348
25/30-10_3/4	180	150	250	100	30	4,13	1,258



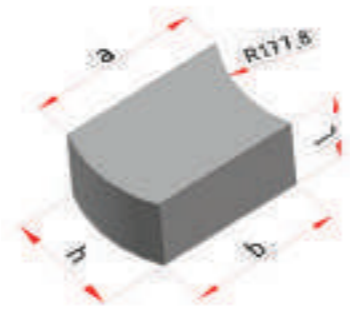
## LADLE BRICKS SAFETY LINE

Shape	Dimensions				Volume dm³	Diameter D(mm)
	a	b	h	i		
SL864	114	106	64	230	1,62	1,696
SL564	114	109	64	230	1,64	2,790
SL976	114	105	76	230	1,91	1,774
SL876	114	106	76	230	1,92	2,016
SL676	114	108	76	230	1,94	2,736
SL476	114	110	76	230	1,96	4,180



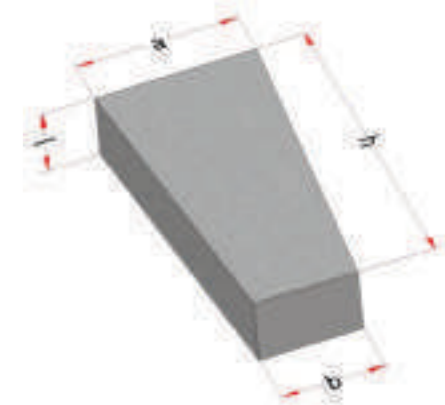
## LADLE BRICKS SEMI-UNIVERSAL

Shape	Dimensions				Volume dm <sup>3</sup>	Diameter D(mm)
	a	b	h	i		
SU 430	210	188,7	101,6	100	2,03	1500-2500
SU 445	210	195,8	101,6	100	2,06	2100-3400
SU 530	210	183,4	127	100	2,50	1500-2500
SU 545	210	192,3	127	100	2,55	2100-3400
SU 560	210	196,7	127	100	2,58	2800-4500
SU 630	210	178,1	152,4	100	2,96	1500-2500
SU 645	210	188,7	152,4	100	3,04	2100-3400
SU 660	210	194	152,4	100	3,08	2800-4500
SU 745	210	185,2	177,8	100	3,51	2100-3400
SU 760	210	191,4	177,8	100	3,57	2800-4500
SU 830	210	168	203,2	100	3,78	1500-2500
SU 845	210	181,6	203,2	100	3,98	2400-3600
SU 860	210	188,7	203,2	100	4,05	3400-4600
SU 930	210	163	228,6	100	4,20	1500-2500
SU 945	210	178,1	228,6	100	4,44	2100-3400
SU 960	210	186,1	228,6	100	4,53	2800-4500



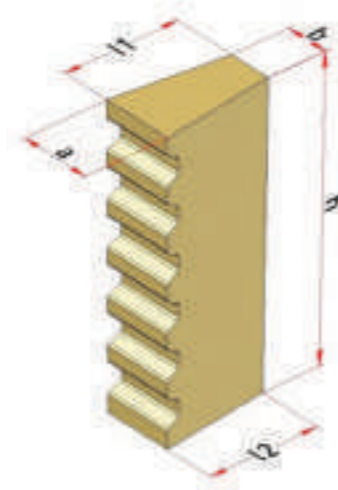
## ARC FURNACE BRICKS

Shape	Dimensions				Volume dm <sup>3</sup>	Diameter D(mm)
	a	b	h	i		
25/0	150	150	250	100	3,75	
25/8	154	146	250	100	3,75	9,125
25/16	158	142	250	100	3,75	4,445
25/30	165	135	250	100	3,75	2,265
25/60	180	120	250	100	3,75	1,025
30/0	150	150	300	100	4,50	
30/8	154	146	300	100	4,50	10,950
30/20	160	140	300	100	4,50	4,200
30/40	170	130	300	100	4,50	1,965
30/70	185	115	300	100	4,50	1,010
35/0	150	150	350	100	5,25	
35/8	150	146	350	100	5,25	25,550
35/20	160	140	350	100	5,25	4,900
35/40	170	130	350	100	5,25	2,285
35/80	190	110	350	100	5,25	985
40/0	150	150	400	100	6,00	
40/8	154	146	400	100	6,00	14.600
40/20	160	140	400	100	6,00	5,600
40/40	170	130	400	100	6,00	2,610
40/80	190	110	400	100	6,00	1.120
45/0	150	150	450	100	6,75	
45/8	154	146	450	100	6,75	16,425
45/20	160	140	450	100	6,75	6,300
45/40	170	130	450	100	6,75	2,925
45/90	195	105	450	100	6,75	1,070
50/0	150	150	500	100	7,50	
50/8	154	146	500	100	7,50	18,250
50/20	160	140	500	100	7,50	7,000
50/60	180	120	500	100	7,50	2,000
55/0	150	150	550	100	8,25	
55/8	154	146	550	100	8,25	20,075
55/20	160	140	550	100	8,25	7,700
55/60	180	120	550	100	8,25	2,200
60/0	150	150	600	100	9,00	
60/8	154	146	600	100	9,00	21,900
60/20	160	140	600	100	9,00	8,400
60/60	180	120	600	100	9,00	2,400
65/0	150	150	650	100	9,75	
65/8	154	146	650	100	9,75	23,725
65/20	160	140	650	100	9,75	9,100
65/60	180	120	650	100	9,75	2,600
70/0	150	150	700	100	10,50	
70/8	154	146	700	100	10,50	25,550
70/20	160	140	700	100	10,50	9,800
70/60	180	120	700	100	10,50	2,800



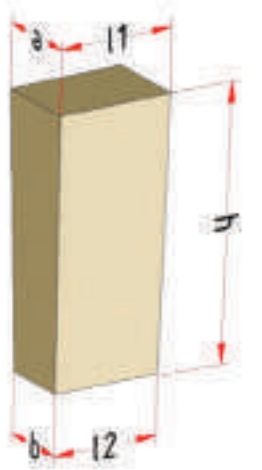
## ARC FURNACE ROOF BRICKS ELECTRODE SURROUNDING BRICKS

Shape	Dimensions					Volume dm <sup>3</sup>	Diameter D(mm)
	a	b	l <sub>1</sub>	l <sub>2</sub>	h		
D1N	81	29,5	115	95	260	1,31	145
D2N	74,5	40	115	95	260	1,42	285
D3N	118,5	45	140	130	320	3,18	195
D4N	90	53	140	130	320	2,85	420
D4 NA	136,6	92,7	140	130	320	4,95	625
D5N	111	64	150	140	375	4,34	435
D5N Key	87	40	150	140	375	3,45	275
D6N	94	63	150	140	375	3,95	630
D6N/E	99	68	150	140	375	4,54	680
D6N/S	89	68	150	140	375	4,27	995
D6N/C2	82	55	125	115	375	3,08	530
D6N 4	82	53	135	125	375	3,29	515
D6N/ Key	81	40	150	140	375	3,02	310
D6N SA	86,6	70,4	150	140	375	4,27	1,330
D7N	108	67,5	180	170	450	6,42	625
D8N	92	65,5	180	170	450	5,80	910
D9N	92	72	180	170	450	6,04	1,320



## ARC FURNACE ROOF BRICKS

Shape	Dimensions					Volume dm <sup>3</sup>	Radius r(mm)
	a	b	l <sub>1</sub>	l <sub>2</sub>	h		
R20	82,5	75	132	120	200	1,99	2.000
R30	80	75	128	120	200	1,92	3.000
R32	81	75	130	120	250	2,44	3.000
R42	80	75	128	120	250	2,40	4.000
R52	79	75	126	120	250	2,37	5.000
R62	78,5	75	125	120	250	2,35	6.000
R72	78	75	124,5	120	250	2,34	7.000
R43	81	75	129	120	300	2,91	4.000
R53	80	75	127	120	300	2,87	5.000
R63	79	75	126	120	300	2,84	6.000
R73	78	75	125	120	300	2,81	7.000
R93	77,5	75	124	120	300	2,79	9.000



Shape	Dimensions							Volume dm <sup>3</sup>	Radius r(mm)
	a	b	c	d	l <sub>1</sub>	l <sub>2</sub>	h		
KR20	71	65	93	85	132	120	200	1,98	2.000
KR30	71,5	67	89	83,5	128	120	200	1,93	3.000
KR32	72,5	67	90,5	83,5	130	120	250	2,45	3.000
KR42	72	68	87	82	128	120	250	2,40	4.000
KR52	72	68	86	82	126	120	250	2,37	5.000
KR62	71	68	85,6	82	125	120	250	2,35	6.000
KR72	71	68	85	82	124,5	120	250	2,34	7.000
KR43	73	68	88	82	129	120	300	2,90	4.000
KR53	72	68	87	82	127	120	300	2,86	5.000
KR63	71,5	68	86	82	126	120	300	2,84	6.000
KR73	71	68	85,5	82	125	120	300	2,82	7.000
KR93	70,5	68	85	82	124	120	300	2,80	9.000



## ROTARY KILN BRICKS ISO SHAPES

Shape	Dimensions				Volume dm <sup>3</sup>	Diameter D(mm)
	a	b	h	l		
216	103	86	160	198	2,99	1,967
316	103	92	160	198	3,09	3,032
416	103	94,5	160	198	3,13	3,290
516	103	96,5	160	198	3,16	5,124
616	103	97,5	160	198	3,18	6,054
716	103	98,3	160	198	3,19	7,084
816	103	98,5	160	198	3,19	7,398
916	103	100	160	198	3,22	11,095
218	103	84	180	198	3,33	1,979
318	103	90,5	180	198	3,45	3,002
418	103	93,5	180	198	3,50	3,946
518	103	95,5	180	198	3,50	4,996
618	103	97	180	198	3,56	6,243
718	103	97,7	180	198	3,58	7,067
818	103	98,5	180	198	3,59	8,322
220	103	82	200	198	3,66	1,990
320	103	89	200	198	3,80	2,978
420	103	92,5	200	198	3,87	3,967
520	103	94,7	200	198	3,91	5,016
620	103	96,2	200	198	3,94	6,121
720	103	97	200	198	3,96	6,936
820	103	97,8	200	198	3,98	8,003
222	103	80	220	198	3,99	1,998
322	103	88	220	198	4,16	3,057
422	103	91,5	220	198	4,24	3,984
522	103	94	220	198	4,29	5,088
622	103	95,5	220	198	4,32	6,105
722	103	96,5	220	198	4,35	7,043
822	103	97,3	220	198	4,36	8,031
225	103	77	250	198	4,46	2,008
325	103	85,5	250	198	4,67	2,977
425	103	90	250	198	4,78	4,005
525	103	92,7	250	198	4,84	5,052
625	103	94,5	250	198	4,89	6,121
725	103	95,5	250	198	4,91	6,936
825	103	96,5	250	198	4,94	8,003
230	103	71,6	300	198	5,19	1,995
330	103	82	300	198	5,49	2,977
430	103	87,3	300	198	5,65	3,979
630	103	92,5	300	198	5,81	5,946
830	103	95	300	198	5,88	7,803



## ROTARY KILN BRICKS ISO SHAPES-LARGE SERIES

Shape	Dimensions				Volume dm <sup>3</sup>	Diameter D(mm)
	a	b	h	l		
218 L300	103	84	180	300	5,05	1,979
318 L300	103	90,5	180	300	5,22	3,002
418 L300	103	93,5	180	300	5,31	3,946
518 L300	103	95,5	180	300	5,36	4,996
618 L300	103	97	180	300	5,40	6,243
718 L300	103	97,7	180	300	5,42	7,067
818 L300	103	98,5	180	300	5,44	8,322
P 18 L300	83	77	180	300	4,32	5,043
P+18 L300	93	87	180	300	4,86	5,643
220 L300	103	82	200	300	5,55	1,990
320 L300	103	89	200	300	5,76	2,978
420 L300	103	92,5	200	300	5,87	3,967
520 L300	103	94,7	200	300	5,93	5,016
620 L300	103	96,2	200	300	5,98	6,121
720 L300	103	97	200	300	6,00	6,936
820 L300	103	97,8	200	300	6,02	8,003
P 20 L300	83	76,2	200	300	4,78	4,944
P+20 L300	93	86,2	200	300	5,38	5,532
222 L300	103	80	220	300	6,04	1,998
322 L300	103	88	220	300	6,30	3,057
422 L300	103	91,5	220	300	6,42	3,984
522 L300	103	94	220	300	6,50	5,088
622 L300	103	95,5	220	300	6,55	6,105
722 L300	103	96,5	220	300	6,58	7,043
822 L300	103	97,3	220	300	6,61	8,031
P 22 L300	83	75,5	220	300	5,23	4,931
P+22 L300	93	85,5	220	300	5,89	5,518
225 L300	103	77	250	300	6,75	2,008
325 L300	103	85,5	250	300	7,07	2,977
425 L300	103	90	250	300	7,24	4,005
525 L300	103	92,7	250	300	7,34	5,052
625 L300	103	94,5	250	300	7,41	6,121
725 L300	103	95,5	250	300	7,44	6,936
825 L300	103	96,5	250	300	7,48	8,003
P 25 L300	83	74,5	250	300	5,91	4,944
P+25 L300	93	84,5	250	300	6,66	5,532



## ROTARY KILN BRICKS VDZ SHAPES

Shape	Dimensions				Volume dm <sup>3</sup>	Diameter D(mm)
	a	b	h	i		
B 216	78	65	160	198	2,27	1,950
B 316	76,5	66,5	160	198	2,27	2,484
B 416	75	68	160	198	2,27	3,477
B 516	79	69	160	198	2,34	2,564
B 616	74	69	160	198	2,27	4,802
B 716	73	70	160	198	2,27	7,895
B 816	74	71	160	198	2,30	8,001
BP 16	64	59	160	198	1,95	4,162
BP + 16	83	77,5	160	198	2,54	4,890
B 218	78	65	180	198	2,55	2,192
B 318	76,5	66,5	180	198	2,55	2,794
B 418	75	68	180	198	2,55	3,911
B 518	74,5	68,5	180	198	2,55	4,532
B 618	74	69	180	198	2,55	5,402
BP 18	64	59	180	198	2,19	4,682
BP + 18	83	77	180	198	2,85	5,043
B 220	78	65	200	198	2,83	2,435
B 320	76,5	66,5	200	198	2,83	3,103
B 420	75	68	200	198	2,83	4,345
B 520	74,5	68,5	200	198	2,83	5,035
B 620	74	69	200	198	2,83	6,002
B 820	78	74	200	198	3,01	7,902
BP 20	64	59	200	198	2,44	5,202
BP + 20	83	76,2	200	198	3,15	4,944
B 222	78	65	220	198	3,11	2,678
B 322	76,5	66,5	220	198	3,11	3,413
B 422	75	68	220	198	3,11	4,779
B 522	74,5	68,5	220	198	3,11	5,559
B 622	74	69	220	198	3,11	6,602
B 822	73	69	220	198	3,09	8,141
BP 22	64	59	220	198	2,68	5,721
BP + 22	83	75,5	220	198	3,45	4,931
B 225	82	61	250	198	3,54	1,981
B 325	78	65	250	198	3,54	3,042
B 425	76,5	66,5	250	198	3,54	3,878
B 525	75	68	250	198	3,54	5,431
B 625	74,5	68,5	250	198	3,54	6,293
B 725	74	69	250	198	3,54	7,501
B 825	73,5	69,5	250	198	3,54	9,314
BP 25	64	59	250	198	3,04	6,501
BP + 25	83	74,5	250	198	3,90	4,944
B 230	81	62	300	198	4,25	2,593
B 430	77	66	300	198	4,25	4,257
B 630	75,5	67,5	300	198	4,25	5,739
B 730	74	68	300	198	4,22	7,501
BP 30	64	56	300	198	3,56	4,877
BP + 30	83	72,5	300	198	4,62	4,803



## ROTARY KILN BRICKS VDZ SHAPES-LARGE SERIES

Shape	Dimensions				Volume dm <sup>3</sup>	Diameter D(mm)
	a	b	h	i		
B 218 L	78	65	180	300	3,86	2,192
B 318 L	76,5	66,5	180	300	3,86	2,794
B 418 L	75	68	180	300	3,86	3,911
B 518 L	74,5	68,5	180	300	3,86	4,532
B 618 L	74	69	180	300	3,86	5,402
BP 18 L	64	59	180	300	3,32	4,682
BP + 18 L	83	77	180	300	4,32	5,043
B 220 L	78	65	200	300	4,29	2,435
B 320 L	76,5	66,5	200	300	4,29	3,103
B 420 L	75	68	200	300	4,29	4,345
B 520 L	74,5	68,5	200	300	4,29	5,035
B 620 L	74	69	200	300	4,29	6,002
B 820 L	78	74	200	300	4,56	7,902
BP 20 L	64	59	200	300	3,69	5,202
BP + 20 L	83	76,2	200	300	4,78	4,944
B 222 L	78	65	220	300	4,72	2,678
B 322 L	76,5	66,5	220	300	4,72	3,413
B 422 L	75	68	220	300	4,72	4,779
B 522 L	74,5	68,5	220	300	4,72	5,539
B 622 L	74	69	220	300	4,72	6,602
B 822 L	73	69	220	300	4,69	8,141
BP 22 L	64	59	220	300	4,06	5,721
BP + 22 L	83	75,5	220	300	5,23	4,932
B 225 L	82	61	250	300	5,36	1,981
B 325 L	78	65	250	300	5,36	3,042
B 425 L	76,5	66,5	250	300	5,36	3,878
B 525 L	75	68	250	300	5,36	5,431
B 625 L	74,5	68,5	250	300	5,36	6,293
B 725 L	74	69	250	300	5,36	7,501
B 825 L	73,5	69,5	250	300	5,36	9,314
BP 25 L	64	59	250	300	4,92	6,501
BP + 25 L	83	74,5	250	300	5,91	4,944



## ROTARY KILN BRICKS A SHAPES

Shape	Dimensions				Volume dm <sup>3</sup>	Diameter D(mm)
	a	b	h	l		
A216	108	89	160	198	3	1,887
A316	105	94	160	198	3	2,956
A416	104	95	160	198	3	3,739
A516	106	99	160	198	3	4,896
A616	102	97	160	198	3	6,595
AP 16	82	77	160	198	3	5,314
AP + 16	92	87	160	198	3	5,955
A218	110	89	180	198	4	1,913
A418	105	95	180	198	4	3,821
A618	103	97	180	198	4	6,243
AP 18	83	77	180	198	3	5,043
AP + 18	93	87	180	198	3	5,643
A220	112	89	200	198	4	1,976
A320	108	93	200	198	4	2,914
A420	106	95	200	198	4	3,896
A620	104	97	220	198	4	6,003
AP 20	84	77	220	198	3	4,860
AP + 20	94	87	220	198	4	5,432
A222	115	89	220	198	4	2,003
A422	107	95	220	198	4	3,965
A622	105	97	220	198	4	5,834
AP 22	85	77	220	198	4	4,733
AP + 22	95	87	220	198	4	5,283
A225	115	89	250	198	5	2,274
A425	109	95	250	198	5	4,061
A625	106	97	250	198	5	5,948
AP 25	86	77	250	198	4	4,836
AP + 25	96	87	250	198	5	5,392
A230	103	72	300	198	5	2,020
A330	103	82	300	198	5	2,977
A430	103	88	300	198	6	4,030
A630	103	93	300	198	6	5,946
A730	103	94	300	198	6	6,936
A830	103	95	300	198	6	7,803
AP 30	87	77	300	198	5	5,283
AP + 30	97	87	300	198	5	5,883
N1	108	92	200	198	3,96	2,732
N2	108	101	200	198	4,14	6,232
N1 Key	91	75	200	198	3,29	
N2 Key	91	84	200	198	3,47	



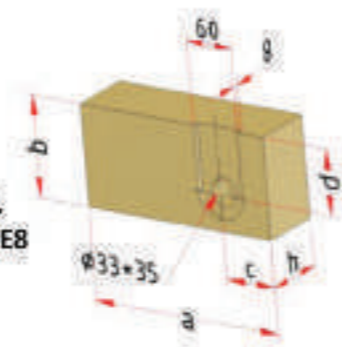
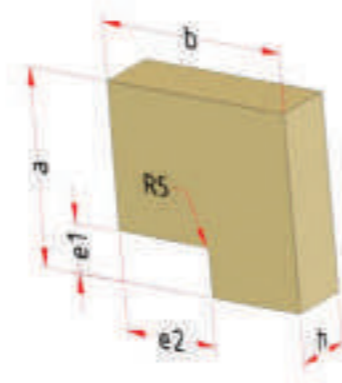
## ROTARY KILN BRICKS ISO SHAPES-KEY BRICKS

Shape	Dimensions				Volume dm <sup>3</sup>
	a	b	h	l	
P16	83	77,5	160	198	2,54
P+16	93	87,5	160	198	2,86
P18	83	77	180	198	2,85
P+18	93	87	180	198	3,21
P20	83	76,2	200	198	3,15
P+20	93	86,2	200	198	3,55
P22	83	75,5	220	198	3,45
P+22	93	85,5	220	198	3,89
P25	83	74,5	250	198	3,90
P+25	93	84,5	250	198	4,39
P30	83	72,5	300	198	4,61
P+30	93	82,5	300	198	5,21
P160	95	85	160	198	2,85
P161	71	63	160	198	2,12
P162	78	70	160	198	2,34
P180	95	86	180	198	3,23
P181	71	65	180	198	2,42
P182	78	71	180	198	2,66
P200	95	87	200	198	3,60
P201	71	65	200	198	2,69
P202	78	71	200	198	2,95
P220	95	87	220	198	3,96
P221	71	65	220	198	2,96
P222	78	71	220	198	3,25
P250	95	86	250	198	4,48
P251	71	65	250	198	3,37
P252	78	71	250	198	3,69
P181 L300	71	65	180	300	3,67
P182 L 300	78	71	180	300	4,02
P201 L300	71	65	200	300	4,08
P202 L300	78	71	200	300	4,47
P204 L300	58	53	200	300	3,33
P205 L300	65	60	200	300	3,75
P221 L300	71	65	220	300	4,49
P222 L300	78	71	220	300	4,92
P224 L300	58	53	220	300	3,66
P225 L300	65	60	220	300	4,13
P254 L300	58	53	250	300	4,16
P255 L300	65	60	250	300	4,69



## ANCHOR BRICKS FOR EXPANSION JOINT

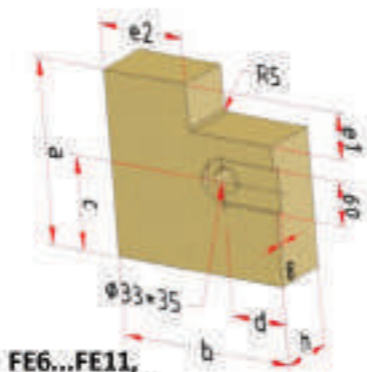
Shape	Dimensions					Volume dm <sup>3</sup>
	a	b	e1	e2	h	
FE4	250	250	63	126	64	3.49
FE5	187	250	63	126	64	2.48
FE9	187	124	63	63	64	1.23
FE10	250	124	63	63	64	1.73
1FE4	230	230	58	116	64	2.96
1FE5	172	230	58	116	64	2.10
1FE9	172	114	58	58	64	1.04
1FE10	230	114	58	58	64	1.46
+FE4	250	250	63	126	76	4.14
+FE5	187	250	63	126	76	2.95
+FE9	187	124	63	63	76	1.46
+FE10	250	124	63	63	76	2.05
+1FE4	230	230	58	116	76	3.52
+1FE5	172	230	58	116	76	2.49
+1FE9	172	114	58	58	76	1.24
+1FE10	230	114	58	58	76	1.73



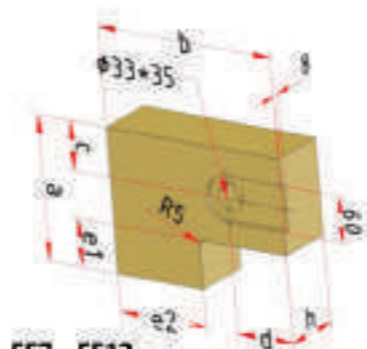
FE8, 1FE8,  
+FE8, +1FE8

## ANCHOR BRICKS FOR WALLS

Shape	Dimensions							Volume dm <sup>3</sup>
	a	b	c	d	e1	e2	h	
FE6	250	250	127	80	63	124	64	3.44
FE7	187	250	64	80	63	124	64	2.43
FE8	250	124	65	60			64	1.92
FE11	187	124	64	60	63	61	64	1.17
FE12	250	124	127	60	63	61	64	1.67
1FE6	230	230	117	80	58	114	64	2.88
1FE7	172	230	59	80	58	114	64	2.03
1FE8	230	114	59	50			64	1.62
1FE11	172	114	59	50	58	56	64	0.98
1FE12	230	114	117	50	58	56	64	1.41
+FE6	250	250	127	80	63	124	76	4.09
+FE7	187	250	64	80	63	124	76	2.89
+FE8	250	124	65	60			76	2.28
+FE11	187	124	64	60	63	61	76	1.39
+FE12	250	124	127	60	63	61	76	1.98
+1FE6	230	230	117	80	58	114	76	3.42
+1FE7	172	230	59	80	58	114	76	2.41
+1FE8	230	114	59	50			76	1.92
+1FE11	172	114	59	50	58	56	76	1.16
+1FE12	230	114	117	50	58	56	76	1.67



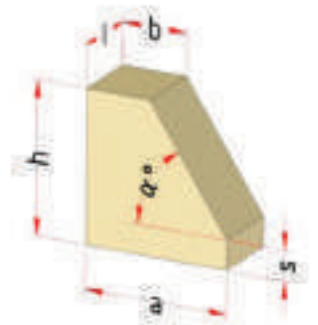
FE6...FE11,  
+FE6...+FE11,



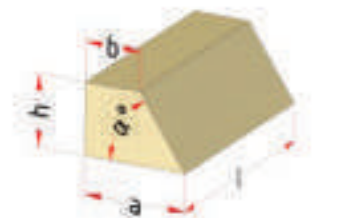
FE7...FE12,  
+FE7...+FE12,

## SKEW BRICKS

Shape	Dimensions						Volume dm <sup>3</sup>
	a	b	h	l	s	a°	
FW1	250	1,125	260	64	51	56°36'	324
FW2	250	1,125	260	124	51	56°36'	628
FW-1A	250	154	260	64	29	67°23'	345
FW-2A	250	154	260	124	29	67°23'	669
WK-1/64	250	135	233	64	33	60°	299
WK-1/76	250	135	233	76	33	60°	474
WK-2/64	250	50	233	64	33	45°	246
WK-2/76	250	50	233	76	33	45°	292
GH-1	250	100	290	100	30	60°	53
WL 230	230	115	230	114	30	60°	561



FW3	124	38	130	250	-	33°24'	263
FW4	187	101	130	250	-	33°24'	468
FW 3A	124	70	130	250	-	22°37'	315
FW 4A	187	133	130	250	-	22°37'	52

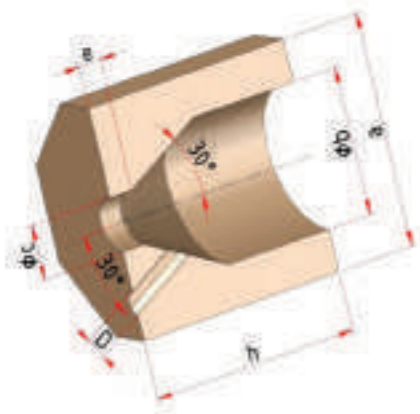


V2B-76	187	120	250	76	-	15°	292
V2L-76	250	150	375	76	-	15°	57
V3L-76	300	180	450	76	-	15°	821
V2L-100	250	150	375	100	-	15°	75
V3L-100	300	180	450	100	-	15°	108
V4L-100	275	140	500	100	-	15°	1,038



## BRENNER BRICKS PRECAST SHAPES

Shape	Dimensions							Volume dm <sup>3</sup>
	a	b	c	d	e	D	h	
780	318	192	65	102	26	44	268	14
781	356	230	90	130	26	44	345	2,515
782	432	254	115	152	32	44	382	4,362
783	432	280	115	152	32	44	382	4,217
784	490	310	115	165	50	44	450	6,525
785	490	310	150	165	50	44	450	6,409
786	490	310	150	165	55	44	450	6,172







**MONOLITICS AND CASTABLES**

## REGULAR DENSE CASTABLES

Product Name	Raw Material Base	Characteristics	Classification Group ASTM C	Type of Application	Water Requirements litres/100kg	Particle Size mm		Max. Service Temp	Chemical Analysis				Bulk Density gr/cm <sup>3</sup>	C.C. Strength N/mm <sup>2</sup>		*) Thermal Conductivity W/m Kat 800 °C	Permanent Linear Change at 1000 °C
									Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	Cr <sub>2</sub> O <sub>3</sub>		110 °C	800 °C		
SADUR 430	Chamotte	Abrasion Reistant	B	Cast & Vib.	10-13	0-5		1250-1300	29.8	4.8	8.3		2.05	35	23	0.72	-0.9
SADUR 444	Chamotte	General Purpose	C	Cast & Vib.	9-12	0-5		1350-1370	43.3	4.1	7.2		2.10	35	22	0.81	-0.8
SADUR 544	Chamotte	General Purpose	C	Cast & Vib.	9-12	0-5		1400	44.8	1.6	7.3		2.15	40	30	0.81	-0.6
SADUR 550	Chamotte	General Purpose	C	Cast & Vib.	8-11	0-5		1420	48.3	1.6	7.3		2.17	40	30	0.83	-0.6
SADUR 750	Chamotte	General Purpose	C	Cast & Vib.	8-11	0-5		1450	49.8	1.2	3.0		2.18	40	30	0.77	-0.5
SADUR 750A	Chamotte	General Purpose	D	Cast & Vib.	8-11	0-5		1470-1500	55.5	1.4	3.0		2.20	45	30	0.87	-0.5
SADUR 764	Bauxite	General Purpose	E	Cast & Vib.	8-11	0-5		1550	62.5	1.5	3.5		2.30	40	35	0.92	-0.5
SADUR 765SP	Bauxite	General Purpose	E	Cast & Vib.	8-11	0-5		1600	66.2	1.5	3.5		2.40	45	35	0.95	-0.5
SADUR 765A	Bauxite	General Purpose	E	Cast & Vib.	8-11	0-5		1600	62.5	0.9	3.5		2.45	40	28	0.92	0
SADUR 870	Bauxite	Trowelling	E	Trowelling	9-13	0-5		1650	82.4	1.7	3.8		2.55	25	20	1.22	-0.5
SADUR 870M	Bauxite	General Purpose	E	Cast & Vib.	8-11	0-3		1650	70.8	1.0	3.5		2.55	35	30	1.05	-0.2
SADUR 880	Bauxite	General Purpose	E	Cast & Vib.	8-11	0-5		1650	84.3	1.6	3.7		2.70	50	35	1.28	-0.2
SADUR 885	Bauxite	General Purpose	E	Cast & Vib.	8-11	0-5		1680	85.8	1.4	3.5		2.80	50	30	1.28	-0.5
SADUR 995	Tabular Al.	General Purpose	G	Cast & Vib.	8-11	0-6,3		1750	96.4	0.1	2.7		2.90	40	25	2.32	-0.2
SADUR 995RA06ST	Tabular Al.	Hot Repair	G	Cast & Vib.	9-12	0-6,3		1750	94.6	0.1	2.7		2.95	90	60	2.56	-0.5
SADUR 995RA03ST	Tabular Al.	Hot Repair	G	Cast & Vib.	9-12	0-3,2		1750	94.6	0.1	2.7		2.95	80	55	2.56	-0.5
SADUR 995RA06EA	Tabular Al.	E.A.F.Roof	G	Cast & Vib.	8-11	0-6,3		1750	96.4	0.1	2.7		2.92	40	30	2.32	-0.2
SADUR 995RA06EA CR	Tabular Al.	E.A.F.Roof	G	Cast & Vib.	8-11	0-6,3		1750	93.4	0.1	2.7	2.9	2.95	40	30	2.63	-0.2
SADUR 997F2	Tabular Al.	Hot Repair	G	Cast & Vib.	10-12	0-3,5		1750	97.5	0.1	1.8		2.85	35	40	2.65	-0.2
SADUR 997RA03PT CR	Tabular Al.	Hot Repair	G	Cast & Vib.	11-12	0-3,5		1750	95.1	0.1	0.9	3.6	2.96	25	40	2.65	-0.2

## NEW GENERATION REGULAR DENSE CASTABLES

Product Name	Raw Material Base	Characteristics	Classification Group ASTM C	Type of Application	Water Requirements litres/100kg	Particle Size mm		Max. Service Temp	Chemical Analysis			Bulk Density gr/cm <sup>3</sup>	C.C. Strength N / mm <sup>2</sup>		*) Thermal Conductivity W/m Kat 800 °C	Permanent Linear Change at 1000 °C
									Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO		110 °C	800 °C		
DURCAST 425	Chamotte	Abrasion Reistart	A	Cast & Vib.	10-13	0-5		1050	19.8	2.3	17.5	2.00	50	18	0.69	-0,5
DURCAST 430	Chamotte	Abrasion Reistart	B	Cast & Vib.	10-13	0-5		1250	28.8	5.7	10.4	2.05	45	25	0.68	-0,5
DURCAST 430P	Chamotte	Abrasion Reistart	B	Cast & Vib.	10-13	0-5		1150	30.8	1.6	17.2	2.10	50	20	0.88	-0,5
DURCAST 440	Chamotte	General Purpose	C	Cast & Vib.	10-13	0-5		1350	43.2	4.3	8.8	2.15	60	43	0.81	-0,2
DURCAST 550CG	Chamotte	General Purpose	C	Cast & Vib.	10-13	0-5		1400	44.8	1.5	6.8	2.20	55	40	0.83	-0,3
DURCAST 584	H.AI. RM	General Purpose	D	Cast & Vib.	10-13	0-5		1550	76.5	1.8	6.8	2.40	50	35	1.18	-0,3
DURCAST 830	Chamotte	Abrasion Reistart	C	Cast & Vib.	8-12	0-5		1380	38.3	1.4	4.1	2.15	55	30	0.95	-0,6
DURCAST 765	Bauxite	High Strength	E	Cast & Vib.	8-12	0-5		1600	65.2	1.3	3.9	2.45	40	30	0.98	-0,5
DURCAST 870D	Bauxite	High Strength	E	Cast & Vib.	8-12	0-5		1600	83.1	1.3	5.4	2.52	60	40	1.26	-0,5
DURCAST 870	Bauxite	Repair Mix	E	Repair Mix	10-14	0-5		1600	80.1	1.5	4.2	2.48	30	25	1.22	-0,3
DURCAST 870C	Bauxite	General Purpose	E	Cast & Vib.	8-12	0-5		1600	77.4	1.5	3.8	2.65	65	40	1.24	-0,2
DURCAST 880	Bauxite	High Strength	E	Cast & Vib.	8-11	0-5		1650	83.4	1.4	3.9	2.70	45	35	1.28	-0,5
DURCAST K 7503	Tabular Al.	General Purpose	E	Cast & Vib.	8-11	0-3		1600	75.4	0.5	3.3	2.65	50	30	1.41	-0,3
DURCAST K 8903	Tabular Al.	General Purpose	F	Cast & Vib.	8-11	0-3		1700	89.5	0.9	3.8	2.85	50	30	2.22	-0,3
DURCAST K 8905	Tabular Al.	General Purpose	F	Cast & Vib.	8-11	0-5		1700	89.5	0.9	3.8	2.87	55	30	2.22	-0,3
DURCAST K 9303	Tabular Al.	General Purpose	G	Cast & Vib.	8-11	0-3		1750	93.6	0.3	3.7	2.90	50	30	2.32	-0,2
DURCAST K 9305	Tabular Al.	General Purpose	G	Cast & Vib.	9-13	0-5		1750	93.6	0.3	3.7	2.90	60	35	2.32	-0,2
DURCAST K 9503	Tabular Al.	General Purpose	G	Cast & Vib.	8-11	0-3,2		1750	95.6	0.1	3.7	2.88	55	35	2.37	-0,2
DURCAST K 9505	Tabular Al.	General Purpose	G	Cast & Vib.	8-11	0-6,3		1750	95.6	0.1	3.7	2.92	75	55	2.37	-0,2
DURCAST K 9703	Tabular Al.	General Purpose	G	Cast & Vib.	8-11	0-3,2		1800	96.6	0.1	2.8	2.92	45	30	2.37	-0,2
DURCAST K 9705	Tabular Al.	General Purpose	G	Cast & Vib.	8-11	0-6,3		1800	96.6	0.1	2.8	2.95	50	30	2.56	-0,2
DURCAST 9503 PT	Tabular Al.	Hot Repair	G	Cast & Vib.	10-16	0-3,2		1750	95.0	0.1	4.1	2.88	45	28	2.32	-0,2
DURCAST 9505 PT	Tabular Al.	Hot Repair	G	Cast & Vib.	10-16	0-6,3		1750	95.0	0.1	4.1	2.92	50	30	2.32	-0,2
DURCAST 9505 PTU	Tabular Al.	Hot Repair	G	Cast & Vib.	10-16	0-3,2		1750	93.5	0.2	4.1	2.92	50	30	2.37	-0,2
DURCAST 9616	Tabular Al.	Hot Repair	G	Cast & Vib.	10-16	0-6,3		1750	96.0	0.1	3.4	2.90	60	40	2.37	-0,2

# LOW CEMENT DENSE CASTABLES

Product Name	Raw Material Base	Characteristics	Classification Group ASTM C	Type of Application	Water Requirements litres /100kg	Particle Size mm	Max. Service Temp	Chemical Analysis						Bulk Density gr/cm <sup>3</sup>	C.C. Strength N / mm <sup>2</sup>		*) Thermal Conductivity W/m Kat 800 °C	Permanent Linear Change at 1000 °C
								Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	SiC	ZrO <sub>2</sub>	Cr <sub>2</sub> O <sub>3</sub>		110°C	800 °C		
VIBRADUR 45 D-Ex	Chamotte	General Purpose	D	Vibration	5,5-6,5	0-5	1480	50.6	1.2	1.7				2.28	85	75	1.68	-0.3
VIBRADUR 50	Chamotte	General Purpose	D	Vibration	5,5-6,5	0-5	1480	50.6	1.2	1.7				2.38	60	55	1.71	-0.3
VIBRADUR 50 D-Ex	Chamotte	General Purpose	D	Vibration	5,5-6,5	0-5	1500	49.8	0.9	1.7				2.40	85	55	1.78	-0.2
VIBRADUR 60	Bauxite	General Purpose	D	Vibration	5,5-6,5	0-5	1550	61.5	1.5	1.7				2.45	60	60	2.21	-0.2
VIBRADUR 60 D-Ex	Bauxite	General Purpose	D	Vibration	5,5-6,5	0-5	1580	61.6	1.2	1.7				2.50	65	60	2.15	-0.2
VIBRADUR 60 A	Andalusite	High Strength	E	Vibration	5,5-6,5	0-5	1600	61.4	0.8	1.5				2.50	65	60	1.85	-0.1
VIBRADUR 65	Bauxite	General Purpose	E	Vibration	5,5-6,5	0-5	1600	65.8	1.6	1.7				2.55	85	75	2.16	-0.1
VIBRADUR 65 D-Ex	Bauxite	General Purpose	E	Vibration	5,5-6,5	0-5	1600	66.1	1.3	1.7				2.60	100	75	2.18	-0.1
VIBRADUR 65 AK08	Andalusite	High Strength	E	Vibration	5,5-6,5	0-5	1650	66.7	0.7	1.5				2.58	65	60	1.92	-0.1
VIBRADUR M 75 D-Ex	H.Al.Raw.Mat.	General Purpose	E	Vibration	5,5-6,5	0-5	1600	73.3	1.4	1.6				2.67	120	95	2.11	-0.1
VIBRADUR BCA 80	Bauxite	General Purpose	E	Vibration	5,5-6,5	0-5	1650	83.6	1.5	1.6				2.70	90	80	2.21	-0.2
VIBRADUR BCA 85	Gib.Bauxite	General Purpose	E	Vibration	5,5-6,5	0-5	1650	84.2	1.4	1.5				2.80	120	110	2.45	-0.2
VIBRADUR BCA 85 Cr	Gib.Bauxite	Slag Resistance	E	Vibration	5,5-6,5	0-5	1650	81.2	1.4	1.5			2.9	2.80	85	70	2.45	-0.2
VIBRADUR BCA 85/ 5 SiC	Bauxite	Alkali Resistant	E	Vibration	5-6	0-5	1600	76.8	1.4	1.5	5.3			2.80	80	80	2.88	-0.1
VIBRADUR BCA 85/ 10 SiC	Bauxite	Alkali Resistant	E	Vibration	5-6	0-5	1600	71.8	1.3	1.5	10.7			2.78	80	80	2.97	-0.1
VIBRADUR BCA 85/ 10 ZR	Bauxite	Alkali Resistant	E	Vibration	5,5-6,5	0-5	1650	78.1	1.2	1.5		6.1		2.78	100	75	2.69	-0.1
VIBRADUR BCA 85/ 15 ZR	Bauxite	Alkali Resistant	E	Vibration	5,5-6,5	0-5	1650	70.4	1.1	1.5		11.4		2.88	60	60	2.81	-0.1
VIBRADUR TCA 87	Tabular Al	Abrasion Reistant	F	Vibration	4,5-5,5	0-6,3	1700	87.2	0.2	1.4				3.00	95	90	2.52	-0.1
VIBRADUR TCA 82	Tabular Al	Abrasion Reistant	F	Vibration	4,5-5,5	0-6,3	1700	82.5	0.3	2.1				2.95	150	160	2.15	-0.1
VIBRADUR TCA 87/ 5 SiC	Tabular Al	Abrasion Reistant	E	Vibration	4,5-5,5	0-6,3	1650	81.7	0.2	1.4	5.3			2.98	90	85	2.72	-0.1
VIBRADUR TCA 87/ 10 SiC	Tabular Al	Abrasion Reistant	E	Vibration	4,5-5,5	0-6,3	1650	76.3	0.2	1.4	9.8			2.99	150	120	2.89	-0.1
VIBRADUR TCA 87/ 15 SiC	Tabular Al	Abrasion Reistant	E	Vibration	4,5-5,5	0-6,3	1600	71.3	0.2	1.4	14.8			2.95	150	120	2.92	-0.1
VIBRADUR TCA 90	Tabular Al	General Purpose	F	Vibration	5,5-6,5	0-6,3	1700	91.9	0.5	1.5				2.90	60	55	2.64	-0.2
VIBRADUR TCA 90Cr	Tabular Al	Slag Resistance	F	Vibration	5,5-6,5	0-6,3	1700	88.9	0.5	1.5			2.9	2.95	95	80	2.67	-0.2
VIBRADUR TCA 95	Tabular Al	High Strength	G	Vibration	5,5-6,5	0-6,3	1750	95.6	0.1	1.4				2.96	80	70	2.65	-0.1
VIBRADUR TCA 95/ Cr	Tabular Al	Slag Resistance	G	Vibration	5,5-6,5	0-6,3	1750	92.6	0.1	1.4			2.9	2.96	75	70	2.65	-0.1
VIBRADUR TCA 98	Tabular Al	General Purpose	G	Vibration	5,5-6,5	0-6,3	1750	97.8	0.1	1.2				2.99	110	95	2.68	-0.1
VIBRADUR TCA 99	Tabular Al	General Purpose	G	Vibration	5,5-6,5	0-6,3	1750	98.5	0.1	1.1				3.00	120	90	2.68	-0.1
VIBRADUR TCA 99Cr	Tabular Al	Slag Resistance	G	Vibration	5,5-6,5	0-6,3	1750	90.5	0.1	1.1			7.8	3.00	85	65	2.71	-0.1
VIBRADUR BCA 80 ALB	Bauxite	Alm.Ind.Non-Wet.	E	Vibration	5,5-6,5	0-5	1600	76.2	1.1	1.5			4,5 *	2.85	65	60	2.61	-0.1
VIBRADUR BCA 80 ALF	Bauxite	Alm.Ind.Non-Wet.	B	Vibration	4,5-5,5	0-5	1250	82.3	1.0	3.1				2.85	110	100	2.75	-0.1
VIBRADUR TSP 9805	T.Al.Spinel	Slag Resistance	G	Vibration	5,5-6,5	0-6,3	1750	92.8	0.1	1.5			4,8**	2.97	60	40	2.72	-0.1

(\*) at 800 °C

(\*\*) BaO content

(\*\*\*) MgO content

## LOW CEMENT DENSE VIBRATING CASTABLES

Product Name	Raw Material Base	Characteristics	Classification Group ASTM C	Type of Application	Water Requirements litres/100kg	Particle Size mm		Max. Service Temp	Chemical Analysis					Bulk Density gr/cm <sup>3</sup>	C.C. Strength N/mm <sup>2</sup>		*) Thermal Conductivity W/m Kat 800°C	Permanent Linear Change at 1000 °C
									Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	SiC	ZrO <sub>2</sub>		110 °C	800 °C		
VIBRADUR ZR40	Zircon	Alkali Resistant	E	Vibration	4,5-5,5	0-5		1600	32.1	0.7	1.7		39.6	3.25	60	45	1.71	-0,1
VIBRADUR ZR50	Zircon	Alkali Resistant	D	Vibration	4,5-5,5	0-5		1550	21.6	0.3	1.7		49.5	3.25	60	45	1.75	-0,1
VIBRADUR 15 ASC	Andalusite	Alkali Resistant	E	Vibration	4,5-5,5	0-5		1600	58.8	0.9	1.7	12.6		2.43	65	60	1.96	-0,1
VIBRADUR 30 ASC	Andalusite	Alkali Resistant	E	Vibration	4,5-5,5	0-5		1600	41.7	0.6	1.5	29.8		2.60	145	110	3.18	-0,1
VIBRADUR 30 BSC	Bauxite	Abrasion Reistant	E	Vibration	4,5-5,5	0-5		1650	53.7	1.2	1.8	29.8		2.60	65	55	3.22	-0,2
VIBRADUR 50 ASC	Andalusite	Abrasion Reistant	E	Vibration	4,5-5,5	0-5		1600	31.1	0.5	1.7	48.5		2.60	70	65	4.35	-0,1
VIBRADUR 50 BSC	Bauxite	Abrasion Reistant	E	Vibration	4,5-5,5	0-5		1600	39.4	0.7	1.8	48.5		2.62	65	60	4.45	-0,1
VIBRADUR 60 SiC	Sil. Carbide	Abrasion Reistant	E	Vibration	4,5-5,5	0-5		1650	28.2	0.5	1.7	58.7		2.60	70	65	6.55	-0,1
VIBRADUR 70 SiC	Sil. Carbide	Abrasion Reistant	E	Vibration	4,5-5,5	0-5		1650	18.9	0.2	3.1	69.8		2.55	75	65	7.55	-0,1
VIBRADUR 85 SiC	Sil. Carbide	Abrasion Reistant	E	Vibration	4,5-5,5	0-3		1650	11.8	0.2	3.2	82.8		2.60	95	75	8.55	-0,2
VIBRADUR SC84 HS	Sil. Carbide	Abrasion Reistant	E	Vibration	4,5-5,5	0-3		1650	9.6	0.2	2.2	82.2		2.60	85	75	8.55	-0,1
VIBRADUR C30 SiC	Chamotte	Alkali Resistant	D	Vibration	5-6	0-5		1550	35.9	0.7	1.5	30.4		2.48	150	120	1.99	-0,1
VIBRADUR 605 ASC	Andalusite	Abrasion Reistant	E	Vibration	5-6	0-5		1600	54.6	0.8	1.7	5.3		2.55	125	110	2.05	-0,2
VIBRADUR 610 ASC	Andalusite	Abrasion Reistant	E	Vibration	5-6	0-5		1600	51.5	0.8	1.7	10.2		2.55	125	110	2.11	-0,2
VIBRADUR U65 CV	Bauxite	General Purpose	E	Vib & Cast	6,5-7,5	0-5		1600	63.8	1.4	2.5			2.50	60	50	1.41	-0,2
VIBRADUR MC444	Chamotte	General Purpose	C	Vib & Cast	6,5-7,5	0-5		1375	42.5	3.1	5.3			2.15	45	40	0.85	-0,3
VIBRADUR MC544	Chamotte	General Purpose	C	Vib & Cast	6,5-7,5	0-5		1400	43.8	1.4	5.2			2.20	45	40	1.21	-0,3
VIBRADUR MC775 A	Andalusite	General Purpose	E	Vib & Cast	6,5-7,5	0-5		1600	75.5	0.9	2.2			2.55	55	50	1.92	-0,1
VIBRADUR MC844	Chamotte	General Purpose	C	Vib & Cast	6,5-7,5	0-5		1450	48.1	1.1	2.4			2.30	80	50	1.25	-0,2
VIBRADUR MC865	Bauxite	General Purpose	E	Vib & Cast	6,5-7,5	0-5		1600	65.4	1.1	2.2			2.65	75	65	1.92	-0,2
VIBRADUR MC880	Bauxite	General Purpose	E	Vib & Cast	6,5-7,5	0-5		1650	81.6	1.4	2.4			2.75	60	50	2.02	-0,1
VIBRADUR AZR5030	Zircon	Abrasion Reistant	E	Vibration	5-6,5	0-5		1600	50.1	0.4	1.6		30.8	3.02	80	70	1.85	-0,1
VIBRADUR 50Dex/ 5 SiC	Chamotte	Alkali Resistant	D	Vibration	5-6,5	0-5		1480	43.7	1.1	1.8	4.9		2.45	150	130	1.68	-0,2
VIBRADUR 50Dex/ 10 SiC	Chamotte	Alkali Resistant	D	Vibration	5-6,5	0-5		1480	42.5	1.1	1.9	9.7		2.45	145	125	1.78	-0,2
VIBRADUR 6010 SiC	Andalusite	Abrasion Reistant	E	Vibration	5-6	0-5		1600	60.5	0.9	1.7	9.8		2.46	70	60	2.12	-0,2
VIBRADUR 60/5 SiC	Andalusite	Abrasion Reistant	E	Vibration	5-6	0-5		1600	60.5	0.9	1.7	4.9		2.45	80	60	2.06	-0,2

(\*) at 800 °C

## ULTRA LOW CEMENT DENSE VIBRATING CASTABLES

Product Name	Raw Material Base	Characteristics	Classification Group ASTM C	Type of Application	Water Requirements litres/100kg	Particle Size mm	Max. Service Temp	Chemical Analysis						Bulk Density gr/cm <sup>3</sup>	C.C. Strength N / mm <sup>2</sup>		*) Thermal Conductivity W/mK	Permanent Linear Change at 1000 °C
								Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	SiC	ZrO <sub>2</sub>	MgO		110°C	800 °C		
ULTRADUR 45	Chamotte	Abrasion Reistant	D	Vibration	5,5-6,5	0-5	1480	44.7	1.1	0.9				2.40	65	60	0.93	-0,1
ULTRADUR 50	Chamotte	General Purpose	D	Vibration	5,5-6,5	0-5	1480	44.5	1.1	1.1				2.40	50	50	0.93	-0,1
ULTRADUR 60 A	Andalusite	Abrasion Reistant	E	Vibration	5,5-6,5	0-5	1600	55.8	1.0	1.7				2.52	65	60	0.96	-0,1
ULTRADUR B85	Bauxite	General Purpose	E	Vibration	4,5-5,5	0-5	1650	84.4	1.6	0.9				2.90	70	65	2.55	-0,1
ULTRADUR B85 T-Ex	Bauxite	High Strength	E	Vibration	4,5-5,5	0-5	1650	80.9	1.5	0.9				2.89	120	95	2.55	-0,2
ULTRADUR B85 T 1	Bauxite	High Strength	E	Vibration	4,5-5,5	0-5	1650	81.1	1.5	0.9				2.90	90	90	2.55	-0,2
ULTRADUR B85 T2	Bauxite	High Strength	E	Vibration	4,5-5,5	0-5	1600	80.6	1.5	0.9				2.90	90	90	2.55	-0,1
ULTRADUR TCA 90	Tabular Al.	General Purpose	F	Vibration	5,5-6,5	0-5	1700	91.2	0.5	0.9				2.92	75	70	2.64	-0,1
ULTRADUR TCA 97	Tabular Al.	General Purpose	G	Vibration	5,5-6,5	0-5	1750	96.7	0.1	0.8				3.10	150	110	2.66	-0,1
ULTRADUR B85/7 SC	Bauxite	Abrasion Reistant	E	Vibration	5,5-6,5	0-5	1600	76.8	1.3	0.9	7.3			2.75	60	50	2.65	-0,1
ULTRADUR TCA 87	Tabular Al.	General Purpose	F	Vibration	4,5-5,5	0-3	1700	86.8	0.1	0.9				2.98	75	65	2.57	-0,2
ULTRADUR TCA 87/ 5 SC	Tabular Al.	Abrasion Reistant	F	Vibration	4,5-5,5	0-3	1700	81.9	0.1	0.9	5.2			2.92	85	75	2.75	-0,1
ULTRADUR TCA 99	Tabular Al.	General Purpose	G	Vibration	5-6	0-5	1780	98.2	0.1	0.8				3.05	70	60	2.68	-0,1
ULTRADUR TSP 99 05	T.Al Spinel	Slag Resistant	G	Vibration	5-6	0-6	1800	93.7	0.1	0.8			4.2	3.02	70	60	2.75	-0,1
ULTRADUR ZR40	Zircon	General Purpose	G	Vibration	5-6	0-5	1600	33.2	0.4	0.9		41.1		3.25	90	120	2.15	-0,1
ULTRADUR AZS5099	Andalusite	Abrasion Reistant	E	Vibration	5-6	0-5	1650	50.9	0.5	1.2	9.8	9.6		2.85	90	110	2.33	-0,1
ULTRADUR AZS5099 R1	High Al. Raw Mat.	General Purpose	G	Vibration	5-6	0-5	1650	60.2	0.8	1.7	5.8	5.2		2.85	90	105	2.35	-0,1
ULTRADUR AZS5099 R2	High Al. Raw Mat.	Abrasion Reistant	E	Vibration	5-6	0-5	1650	65.5	1.2	1.7	5.8	5.2		2.85	90	100	2.37	-0,1

(\*) at 800 °C

## SELF-FLOWING DENSE CASTABLES

Product Name	Raw Material Base	Characteristics	Classification Group ASTM C	Type of Application	Water Requirements litres/100kg	Particle Size mm		Max. Service Temp	Chemical Analysis			Bulk Density gr/cm <sup>3</sup>	C.C.Strength N/mm <sup>2</sup>		*) Thermal Conductivity W/m Kat 800 °C	Permanent Linear Change at 1000 °C
									Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO		110°C	800 °C		
FLODUR CA 750 L	Chamotte	General Purpose	D	SFL+Vib	7-8	0-5		1480	47.9	1.0	2.9	2.40	65	60	0.93	-0,1
FLODUR BA 760 L	Bauxite	General Purpose	D	SFL+Vib	7-8	0-5		1550	60.6	1.1	2.9	2.40	40	40	0.93	-0,1
FLODUR BA 780 L	Bauxite	General Purpose	E	SFL+Vib	7-8	0-5		1600	76.9	1.4	2.9	2.52	65	60	0.96	-0,1
FLODUR BA 760 U	High Al.Mat.	General Purpose	E	SFL+Vib	5-7	0-5		1650	56.2	1.0	0.9	2.90	70	65	2.55	-0,1
FLODUR BA 780 U	Bauxite	General Purpose	E	SFL+Vib	5-7	0-5		1680	80.9	1.5	0.9	2.92	90	95	2.55	-0,2
FLODUR M 80 L	High Al.Mat.	General Purpose	E	SFL+Vib	5-7	0-5		1650	71.6	0.9	2.8	2.78	70	65	2.35	-0,1
FLODUR M 80 U	High Al.Mat.	General Purpose	E	SFL+Vib	5-7	0-5		1680	76.2	0.8	1.0	2.82	90	95	2.45	-0,2
FLODUR TCA 90 L	Tabular Al.	High Strength	F	SFL+Vib	5,5-6,5	0-6,3		1750	88.8	0.2	2.8	2.90	70	660	2.65	-0,1
FLODUR TCA 92 U	Tabular Al.	High Strength	F	SFL+Vib	5,5-6,5	0-6,3		1750	90.6	0.2	0.9	2.95	70	60	2.67	-0,1

(\*) at 800 °C

## REGULAR GUNNING MIXES

Product Name	Raw Material Base	Characteristics	Classification Group ASTM C	Type of Application	Water Requirements litres/100kg	Particle Size mm	Max. Service Temp	Chemical Analysis				Bulk Density gr/cm <sup>3</sup>	C.C. Strength N/mm <sup>2</sup>		*) Thermal Conductivity W/m K	Permanent Linear Change at 1000 °C
								Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	SiC		110°C	800 °C		
GUNDUR 30 GG	Chamotte	General Purpose	B	Guning	11-14	0-3	1250-1300	31.6	4.9	7.5		1.98	35	20	0.72	-0,5
GUNDUR 44 GG	Chamotte	General Purpose	C	Guning	13-14	0-3	1380	42.5	4.1	7.4		2.02	30	20	0.83	-0,5
GUNDUR 750	Chamotte	General Purpose	C	Guning	13-14	0-3	1450	50.4	1.6	5.1		2.12	65	60	0.85	-0,5
GUNDUR 770	Bauxite	General Purpose	E	Guning	12-14	0-5	1600	73.8	1.7	4.9		2.55	30	25	1.88	-0,6
GUNDUR 775	Chamotte	General Purpose	D	Guning	12-14	0-5	1500	55.7	1.6	4.9		2.22	45	40	0.93	-0,6
GUNDUR 780	Bauxite	General Purpose	D	Guning	12-14	0-5	1550	59.3	1.6	4.9		2.35	45	40	0.97	-0,6
GUNDUR 785	Bauxite	General Purpose	E	Guning	12-14	0-5	1650	81.7	1.7	4.9		2.65	45	40	2.28	-0,5
GUNDUR HC440 HS	Chamotte	General Purpose	C	Guning	13-15	0-5	1370	42.6	5.5	8.8		2.10	40	30	0.78	-0,5
GUNDUR HC550 HS	Chamotte	General Purpose	C	Guning	13-15	0-5	1400	45.6	2.5	8.5		2.15	40	30	0.83	-0,5
GUNDUR HC750 HS	Chamotte	General Purpose	D	Guning	13-15	0-5	1480	53.6	1.0	7.5		2.18	60	55	0.88	-0,5
GUNDUR 6010 SiC	Andalusite	Alkali Resistant	E	Guning	11-13	0-5	1600	60.9	0.9	4.9	10.7	2.35	75	65	2.05	-0,5
GUNDUR 4030 SiC	Andalusite	Alkali Resistant	E	Guning	11-13	0-5	1600	45.9	0.8	4.8	30.7	2.45	70	70	3.06	-0,5
GUNDUR 780/5 SiC	High Al. Raw Mat.	Alkali Resistant	D	Guning	10-14	0-3	1550	60.2	1.2	4.1	5.3	2.35	65	60	2.05	-0,5
GUNDUR 610 ASC-CH	Andalusite	Alkali Resistant	E	Guning	11-13	0-5	1600	61.2	0.9	4.3	10.5	2.38	85	80	2.05	-0,5

(\*) at 800 °C

## ABRASION RESISTANT TROWEL MIXES

Product Name	Raw Material Base	Characteristics	Classification Group ASTM C	Type of Application	Water Requirements litres/100kg	Particle Size mm	Max. Service Temp	Chemical Analysis			Bulk Density gr/cm <sup>3</sup>	C.C. Strength N/mm <sup>2</sup>		*) Thermal Conductivity W/m K	Permanent Linear Change at 1000 °C
								Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO		110°C	800 °C		
DURAFLEX AR422 T	Chamotte	Abrasion Resistant	B	Trowelling	11-14	0-4	1100	28.4	4.5	7.8	2.05	40	30	0.83	-0,9
DURAFLEX AR835 T	Chamotte	Abrasion Resistant	B	Trowelling	10-14	0-4	1200	32.8	1.7	3.8	2.10	35	20	0.86	-0,7
DURAFLEX AX71	Bauxite	Abrasion Resistant	C	Trowelling	10-14	0-5	1300	80.2	1.5	5.2	2.70	150	140	1.82	-0,4

(\*) at 800 °C



## LOW CEMENT GUNNING MIXES

Product Name	Raw Material Base	Characteristics	Classification Group ASTM C	Type of Application	Water Requirements litres/100kg	Particle Size mm		Max. Service Temp	Chemical Analysis					Bulk Density gr/cm <sup>3</sup>	C.C. Strength N/mm <sup>2</sup>		*) Thermal Conductivity W/m K	Permanent Linear Change at 1000 °C
									Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	SiC	ZrO <sub>2</sub>		110°C	800 °C		
GUNDUR LC750 HS	Chamotte	HighStrength	D	Guning	10-14	0-5		1550	49.7	0.8	2.6			2.25	55	35	0.87	-0.5
GUNDUR LC750/ 10 SiC	Chamotte	Alkali Resistart	D	Guning	10-14	0-5		1550	44.5	0.9	2.6			2.25	65	55	1.25	-0.5
GUNDUR LC785 HS	Bauxite	HighStrength	E	Guning	10-14	0-5		1650	80.7	1.3	2.4			2.65	55	45	2.55	-0.5
GUNDUR LC995 HS	Tabular Alumina	General Purpose	F	Guning	10-13	0-5		1750	92.2	0.2	2.1			2.75	55	40	2.65	-0.5
GUNDUR K9505	Tabular Alumina	General Purpose	F	Guning	10-13	0-5		1750	92.8	0.2	4.1			2.75	55	40	2.65	-0.5
GUNDUR LC750/ 5SiC	Chamotte	Alkali Resistart	D	Guning	10-14	0-5		1550	46.8	0.8	2.9	5.8		2.25	70	65	1.22	-0.5
GUNDUR MC755 HS	Chamotte	General Purpose	E	Guning	11-15	0-5		1580	54.3	0.9	3.9			2.32	55	40	1.05	-0.5
GUNDUR MC760 HS	Gibs.Bauxite	General Purpose	E	Guning	10-14	0-5		1600	61.8	1.5	3.7			2.35	55	40	1.15	-0.5
GUNDUR MC765 HS	Bauxite	General Purpose	E	Guning	10-14	0-5		1600	65.7	1.6	3.8			2.35	55	45	1.15	-0.5
GUNDUR MC4030 SiC	High Al.Raw Mat.	Alkali Resistart	E	Guning	11-14	0-5		1600	45.2	1.1	4.1	30.1		2.45	70	65	3.05	-0.5
GUNDUR MC6010 SiC	High Al.Raw Mat.	Abrasion Resistant	E	Guning	11-14	0-5		1600	61.5	0.9	4.1	10.2		2.40	65	60	2.04	-0.5
GUNDUR LC70 SiC	Silicon Carbide	Alkali Resistart	D	Guning	10-14	0-5		1550	18.4	0.5	2.2	68.5		2.40	60	50	4.78	-0.5
GUNDUR LC84 SiC	Silicon Carbide	Alkali Resistart	D	Guning	10-14	0-3		1550	9.5	0.4	2.2	83.7		2.42	60	50	4.78	-0.5
GUNDUR LC7605 ASC	Andalusite	Alkali Resistart	D	Guning	10-14	0-5		1550	57.2	0.7	2.9	5.7		2.35	70	65	2.05	-0.5
GUNDUR LC7610 ASC	Andalusite	Alkali Resistart	D	Guning	11-14	0-5		1550	54.8	0.7	2.9	10.2		2.35	70	65	2.05	-0.5
GUNDUR LC7630 ZR	Andalusite	Abrasion Resistant	E	Guning	12-15	0-5		1450	51.2	0.5	3.2		27.4	2.42	70	60	1.24	-0.5
GUNDUR LC7676 AZS	Andalusite	Alkali Resistart	D	Guning	12-15	0-5		1550	55.8	0.7	3.0	7.4	6.5	2.40	60	60	2.05	-0.5
GUNDUR LC7699 AZS	Andalusite	Alkali Resistart	D	Guning	12-15	0-5		1500	51.8	0.6	3.2	9.7	10.2	2.45	75	70	2.05	-0.5
GUNDUR MC444 HS	Chamotte	General Purpose	C	Guning	12-15	0-5		1380	42.6	4.3	5.5			2.11	45	35	1.12	-0.5
GUNDUR MC544 HS	Chamotte	General Purpose	C	Guning	12-15	0-5		1400	44.1	2.7	5.5			2.15	45	35	2.05	-0.5

(\*) at 800 °C

## INSULATING CASTABLES AND INSULATING GUNNING MIXES

Product Name	Raw Material Base	Characteristics	Classification Group ASTM C	Type of Application	Dry Material Requirement Ton/m <sup>3</sup>	Water Requirements litres/100kg		Particle Size mm	Max. Service Temp	Chemical Analysis				Bulk Density gr/cm <sup>3</sup>	C.C. Strength N / mm <sup>2</sup> 110°C	*) Thermal Conductivity W/m K		Permanent Linear Change at 1000°C
										Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	CaO	MgO			500°C	800°C	
IZODUR P 05 P	Perlite	Beck up Insulating	-	Cast & Gun	0.45	110		0-4	850	12.6	4.4	27.8		0.52	0.5	0.17	0.22	-2,0 (800°C)
IZODUR P 05	Perlite	Beck up Insulating	-	Cast & Gun	0.52	110		0-4	900	25.5	9.8	19.8		0.58	0.5	0.17	0.22	-2,0 (900°C)
IZODUR P 05 VG	Vermiculite	Beck up Insulating	-	Cast & Gun	0.52	110		0-4	900	26.2	10.4	20.2	2.9	0.58	0.5	0.15	0.22	-2,0 (900°C)
IZODUR P 4	Chamotte&Perlite	Beck up Insulating	N	Casting	0.72	60		0-4	1,000	31.2	9.8	18.6		0.78	1.8	0.24	0.27	-1.8
IZODUR P 4 S	Chamotte&Perlite	Beck up Insulating	O	Casting	0.75	110		0-4	1,000	38.9	5.6	12.4		0.83	1.6	0.24	0.28	-1.5
IZODUR P 4 LI	Chamotte&Perlite	Beck up Insulating	P	Casting	0.75	60		0-4	1,200	47.5	0.5	8.5		0.84	1.8	0.24	0.29	-1.2
IZODUR P 7	Chamotte&Perlite	Beck up Insulating	N	Casting	0.82	55		0-4	1,100	32.2	9.6	18.4		0.89	2.0	0.24	0.29	-1.5
IZODUR S4	Chamotte&Perlite	Beck up Insulating	O	Cast & Gun	0.93	60		0-5	1,150	34.4	7.8	16.2		0.96	2.5	0.25	0.29	-1.2
IZODUR S 4 VG	Chamotte&Vermic.	Beck up Insulating	O	Cast & Gun	0.95	60		0-4	1,150	35.7	8.2	16.8	3.1	0.97	2.2	0.22	0.29	-1.2
IZODUR PC 4 S	Chamotte&Perlite	Beck up Insulating	O	Casting	0.96	60		0-4	1,250	38.8	3.2	15.8		1.04	2.2	0.24	0.29	-1.2
IZODUR S7	Chamotte&Perlite	Beck up Insulating	P	Casting	1.04	55		0-4	1,200	36.2	8.3	18.2		1.15	2.5	0.24	0.29	-1.3
IZODUR S7 VG	Chamotte&Vermic.	Beck up Insulating	P	Cast & Gun	1.05	55		0-4	1,200	35.8	8.5	18.4	2.6	1.18	2.5	0.24	0.28	-1.2
IZODUR A4	Chamotte&Perlite	Beck up Insulating	Q	Casting	1.21	35		0-5	1,300	41.6	6.4	12.4		1.35	3.0	0.31	0.37	-1.0
IZODUR A7	Chamotte&Perlite	Beck up Insulating	Q	Casting	1.33	35		0-5	1,300	43.8	3.2	12.2		1.44	3.2	0.32	0.37	-1.0
IZODUR A8	Light Chamotte	Beck up Insulating	-	Casting	1.66	30		0-5	1,300	41.4	6.8	11.8		1.78	8.0	0.44	0.47	-0.9
IZODUR 50	Light Chamotte	Beck up Insulating	R	Cast & Gun	1.44	50		0-3	1350-1370	49.6	1.1	9.8		1.52	5.0	0.41	0.45	-0.6
IZODUR 55 LC	Light Chamotte	Beck up Insulating	S	Casting	1.52	30		0-5	1500-1550	58,5	0.8	2.9		1.61	6.0	0.43	0.47	-0.3
IZODUR 95	Bubble Alumina	Beck up Insulating	U	Casting	1.52	22		0-5	1,750	92.9	0.2	4.0		1.58	10.0	0.91	0.96	-0.2
IZOGUNDUR S 4	Chamotte&Vermic.	Beck up Insulating	O	Gunning	0.98	At Nozzle		0-4	1,150	34.4	7.8	16.2		1.04	2.2	0.25	0.29	-1.3
IZOGUNDUR S 7	Chamotte&Perlite	Beck up Insulating	P	Gunning	1.1	At Nozzle		0-4	1,200	36.2	8.3	18.2		1.2	2.2	0.24	0.29	-1.2
IZOGUNDUR S 4 V	Chamotte&Vermic.	Beck up Insulating	O	Gunning	0.98	At Nozzle		0-4	1,200	35.7	8.2	16.8	3.4	1.06	2.5	0.22	0.29	-1.3
IZOGUNDUR S 7 V	Chamotte&Vermic.	Beck up Insulating	P	Gunning	1.1	At Nozzle		0-4	1,200	35.7	8.5	18.4	3.4	1.25	2.5	0.24	0.29	-1.2
IZOGUNDUR A 4	Light Chamotte	Beck up Insulating	Q	Gunning	1.25	At Nozzle		0-5	1,300	41.6	6.8	11.8		1.37	3.0	0.31	0.37	-1.1
IZOGUNDUR A 7	Light Chamotte	Beck up Insulating	Q	Gunning	1.35	At Nozzle		0-5	1,300	43.6	3.3	12.1		1.45	3.2	0.32	0.29	-1.1
IZOGUNDUR A 8	Light Chamotte	Beck up Insulating	-	Gunning	1.68	At Nozzle		0-5	1,300	41.5	6.7	11.9		1.78	5.0	0.44	0.47	-1.0
IZOGUNDUR 55 LC	Light Chamotte	Beck up Insulating	S	Gunning	1.55	At Nozzle		0-5	1,500	57.1	0.8	3.6		1.67	6.0	0.44	0.55	-0.3

## RAMMING AND PLASTIC MATERIALS

Product Name	Raw Material Base	Type of Bond	Mixing Liquid	Type of App.	Form of Supply	Particle Size mm	Max. Service Temp	Chemical Analysis			Bulk Density gr/cm <sup>3</sup>	C.C. Strength N/mm <sup>2</sup>		*) Thermal Conductivity W/m °K	Permanent Linear Change at %1000 °C
								Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	P <sub>2</sub> O <sub>5</sub>		110 °C	1000 °C		
RAMDUR 50	Chamotte	Ceramic+Chem.	Water 3-4 %	Raming	Dry	0-5	1600	48.8	1.5		2.17	8	18	1.12	-0,8
RAMDUR 70	Bauxite	Ceramic+Chem.	Water 3-4 %	Raming	Dry	0-5	1650	67.6	1.7		2.28	10	20	1.58	-0,7
RAMDUR 80	Bauxite	Ceramic+Chem.	Water 3-4 %	Raming	Dry	0-5	1700	77.9	1.8		2.55	10	22	1.61	-0,7
RAMDUR 85 W	Bauxite	Chemical	Ready to use-Granular	Raming	Wet. Ready to use	0-5	1650	84.8	1.2	2.6	2.71	12	25	1.75	-0,5
PLASDUR 60 AS	Bauxite	Chemical	Ready to use-Slices or Lumps	Raming	Wet. Ready to use	0-5	1600	59.7	1.2	4.8	2.29	20	30	1.58	-0,7
PLASDUR 85 AS	Bauxite	Chemical	Ready to use-Slices or Lumps	Raming	Wet. Ready to use	0-5	1630	82.4	1.2	4.7	2.75	20	35	2.29	-0,5
PLASDUR 92 AS	Tabular Al	Chemical	Ready to use-Slices or Lumps	Raming	Wet. Ready to use	0-3	1750	90.1	0.2	4.4	2.77	25	35	2.98	-0,4
PLASDUR 95 AS	Tabular Al	Chemical	Ready to use-Slices or Lumps	Raming	Wet. Ready to use	0-6,3	1750	93.6	0.2	4.4	2.79	25	35	3.01	-0,4
PLASDUR 60	High Al. Mat.	Ceramic	Ready to use-Slices or Lumps	Raming	Wet. Ready to use	0-5	1620	59.6	1.6		2.25	5	15	1.21	-0,7
PLASDUR 80	Bauxite	Ceramic	Ready to use-Slices or Lumps	Raming	Wet. Ready to use	0-5	1700	79.4	1.8		2.52	8	20	1.76	-0,6
PLASDUR 90	Korundum	Ceramic	Ready to use-Slices or Lumps	Raming	Wet. Ready to use	0-6	1750	88.9	0.5		2.75	5	22	2.36	-0,5

(\*) at 800 °C

# MAGNESIA MIXES

Product Name	Raw Material Base	Type of Bond	Charateristics	Type of Application	Water Requirements litres/100kg	Particle Size mm	Max. Service Temp	Chemical Analysis						Bulk Density gr/cm <sup>3</sup>	C.C. Strength N / mm <sup>2</sup> 1400 °C	*) Thermal Conductivity W/m K
								MgO	Fe <sub>2</sub> O <sub>3</sub>	CaO	SiO <sub>2</sub>	Cr <sub>2</sub> O <sub>3</sub>	C			
RAMDUR MG92Cr	Magnesia	Chemical	General Purpose	Ram&Cast	4-6	0-5	1,750	90.8	1.2	1.9	4.5	1.6		2.55	18.0	1.2
RAMDUR MG95Cr	Magnesia	Chemical	General Purpose	Ram&Cast	4-6	0-5	1,750	93.7	0.8	1.6	2.1	1.7		2.65	20.0	1.2
RAMDUR MG92PH	Magnesia	Phosphate	General Purpose	Ramming	3-4	0-5	1,750	91.5	1.1	1.8	4.5			2.45	12.0	1.2
RAMDUR MG951/C	Magnesia	Chemical	General Purpose	Ram&Cast	4-6	0-5	1,750	90.6	1.1	1.7	5.2			2.65	20.0	1.2
RAMDUR MG95MS	Magnesia	Sulphate	General Purpose	Ram&Cast	4-7	0-5	1,750	95.2	0.7	1.8	1.7			2.62	14.0	1.2
RAMDUR MG95P	Magnesia	Pitch	LD. Converters	Ramming	Ready to use	0-5	1,750	93.2	0.5	1.8	0.8		2.6	2.65	16.0	1.3
RAMDUR MG80HR	H.LimeMagnesia	Chemical+OI	E.A.FBottom	Ramming	Ready to use	0-5	1,750	88.9	4.3	4.8	1.6			2.7	12.0	1.2
RAMDUR MG80FET	H.LimeMagnesia	Chemical+OI	E.AF Fetting Mix	Ramming	Ready to use	0-8	1,750	86.7	5.5	6.1	1.8			2.6	10.0	1.2
GUNDUR MG80	H.LimeMagnesia	Ceramic	Hot Repair E.A.F	Guning	Nozzle	0-3	1,750	80.3	5.7	5.4	6.5			2.4	18.0	1.1
GUNDUR MG85	H.LimeMagnesia	Ceramic	Hot Repair E.A.F	Guning	Nozzle	0-3	1,750	84.2	2.3	2.7	6.5			2.4	18.0	1.1
GUNDUR MG90	Magnesia	Ceramic	Hot Repair E.A.F&Con.	Guning	Nozzle	0-3	1,750	86.4	1.2	1.8	6.9			2.4	18.0	1.1
GUNDUR MG92	Magnesia	Ceramic	Hot Repair E.A.F&Con.	Guning	Nozzle	0-3	1,750	90.2	0.9	1.7	6.2			2.4	18.0	1.1
GUNDUR MG95	Magnesia	Ceramic	Hot Repair E.A.F&Con.	Guning	Nozzle	0-3	1,750	92.2	0.8	1.8	4.1			2.42	18.0	1.1

(\*) at 800 °C

## REFRACTORY MORTARS

Product Name	Raw Material Base	Type of Bond	Mixing Liquid	Type of Application	Form of Supply	Particle Size mm	Max. Service Temp	Chemical Analysis			Refractoriness	
								Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	MgO	SK	° C
DURHARC 30	Chamotte	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,5	1400	30.8	2.2		28	1570
DURHARC 35	Chamotte	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,5	1500	35.7	2.2		30	1730
DURHARC 40	Chamotte	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,5	1500	40.4	2.2		33	1730
DURHARC 42	Chamotte	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,5	1500	42.5	1.8		34	1730
DURHARC 45	Chamotte	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,5	1600	45.8	1.9		34	1755
DURHARC 50	Chamotte	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,5	1650	50.6	1.9		35	1780
DURHARC 60	Bauxite	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,5	1650	59.7	1.9		36	1805
DURHARC S 60	Andalusite	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,5	1680	57.6	1.4		37	1830
DURHARC 70	Bauxite	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,5	1680	70.9	1.9		37	1830
DURHARC 80	Bauxite	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,4	1700	79.7	1.9		37	1830
DURHARC 85	Bauxite	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,4	1750	81.4	1.8		38	1855
DURHARC 90 Ç	Bauxite	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,4	1750	82.9	1.7		38	1855
DURHARC 95	Tabular Al.	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,3	1800	93.4	0.4		39	1875
DURHARC MG92	Magnesia	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,3	1800		1.3	91.2	>40	1900
DURHARC MG95	Magnesia	Ceramic	Water 20-25 %	Trowelling	Dry	0-0,3	1800		1.5	93.8	>40	1900

(\*) at 800 °C

## WET REFRACTORY MORTARS

Product Name	Raw Material Base	Type of Bond	Mixing Liquid	Type of Application	Form of Supply	Particle Size mm		Max. Service Temp	Chemical Analysis						Refractorinness	
									Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	SiO <sub>2</sub>	Cr <sub>2</sub> O <sub>3</sub>	P <sub>2</sub> O <sub>5</sub>	Na <sub>2</sub> O	SK	°C
DURBOND S 10	Chamotte	Chemical	Ready to use	Trowelling	Wet	0-0,5		1250	10.2	0.3				3.9	26	1580
DURBOND S 40	Chamotte	Chemical	Ready to use	Trowelling	Wet	0-0,5		1500	38.7	1.3				3.7	30	1670
DURBOND S 25	Chamotte	Chemical	Ready to use	Trowelling	Wet	0-0,5		1300	24.8	1.0				3.9	26	1580
DURBOND S 40 C	Chamotte	Chemical	Ready to use	Trowelling	Wet	0-0,5		1500	38.2	1.3			0,6*	3.7	30	1670
DURBOND S 50	Chamotte	Chemical	Ready to use	Trowelling	Wet	0-0,5		1600	45.9	1.5				3.6	32	1710
DURBOND S 65 D	Bauxite	Chemical	Ready to use	Trowelling	Wet	0-0,5		1650	63.8	1.8				3.6	34	1750
DURBOND S 75	Bauxite	Chemical	Ready to use	Trowelling	Wet	0-0,5		1650	75.7	1.9				3.5	35	1780
DURBOND S 90 ACP	Silica	Chemical	Potassium Silicate	Trowelling	Dry	0-0,5		1200	2.8	0.5	93.8			-	-	
DURBOND 75 P	Bauxite	Chemical	Ready to use	Trowelling	Wet	0-0,4		1680	75.8	1.9			1.9		36	1805
DURBOND 85 P	Bauxite	Chemical	Ready to use	Trowelling	Wet	0-0,4		1680	82.8	1.8			5.4		37	1830
DURBOND 90 P	Tabular Al	Chemical	Ready to use	Trowelling	Wet	0-0,3		1750	89.8	0.5			3.2		38	1855
DURBOND 95/ CR	Tabular Al	Chemical	Ready to use	Trowelling	Wet	0-0,3		1750	84.6	0.3		4.8	3.2		39	1875
DURBOND 90 CR2	Tabular Al	Chemical	Ready to use	Trowelling	Wet	0-0,3		1750	89.8	0.4		1.9	3.2		38	1855
DURBOND 95/ CR10	Tabular Al	Chemical	Ready to use	Trowelling	Wet	0-0,3		1750	84.6	0.3		9.9	4.5		39	1875
DURBOND 95 GRF	Tabular Al	Chemical	Ready to use	Trowelling	Wet	0-0,3		1750	89.3	0.3			1,5*		38	1855

(\*) C Content

## ALUMINA REFRACTORY MORTARS

Product Name	Chemical Composition (%)		Grain Size mm	Type of Bond	Raw Material Base	Form of Supply	Mixing Liquid % Water	Refractoriness	
	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>						S.K.	°C
HAZBOND C35	35	2,2	0-0,5	Ceramic	Hamotte	Dry	20-25	30	1.680
HAZBOND C40	40	2,2	0-0,5	Ceramic	Chamotte	Dry	20-25	31	1.695
HAZBOND C45	45	2,0	0-0,5	Ceramic	Chamotte	Dry	20-25	32	1.710
HAZBOND C50	50	2	0-0,5	Ceramic	Chamotte	Dry	20-25	33	1.730
HAZBOND B60	60	1,9	0-0,5	Ceramic	Bauxide	Dry	20-25	34	1.755
HAZBOND B65	65	1,9	0-0,5	Ceramic	Bauxide	Dry	20-25	35	1.780
HAZBOND B70	70	1,9	0-0,5	Ceramic	Bauxide	Dry	20-25	36	1.805
HAZBOND B75	75	1,9	0-0,5	Ceramic	Bauxide	Dry	20-25	36	1.805
HAZBOND B80	80	1,9	0-0,5	Ceramic	Bauxide	Dry	20-25	37	1.830
HAZBOND B85	85	1,9	0-0,5	Ceramic	Bauxide	Dry	20-25	37	1.830
HAZBOND B85 A	86	1,7	0-0,5	Ceramic	Bauxide	Dry	20-25	38	1.855
HAZBOND BA90	86	1,6	0-0,5	Ceramic	Bauxide	Dry	20-25	38	1.855
HAZBOND S60	60	1,3	0-0,5	Ceramic	Andalusite	Dry	20-25	36	1.805
HAZBOND M75	75	0,5	0-0,3	Ceramic	Mullite	Dry	20-25	39	1.875
HAZBOND K95	95	0,5	0-0,3	Ceramic	Corund	Dry	20-25	40	1.900
HAZBOND C30L	33	2,3	0-1,0	Ceramic	Chamotte	Dry	20-25	29	1.655
HAZBOND D25L	25	2,3	0-1,0	Ceramic	Chamotte	Dry	20-25	26	1.585

## BASIC REFRACTORY MORTARS

Product Name	Chemical Composition (%)				Grain Size mm	Type of Bond	Raw Material Base	Form of Supply	Mixing Liquid % Water	Refractoriness	
	MgO	Cr <sub>2</sub> O <sub>3</sub>	CaO	Fe <sub>2</sub> O <sub>3</sub>						S.K.	°C
HAZBONDMG 90	90		2,4	0,7	0-0,3	Ceramic-Chem.	Magnesia	Dry	20-25	42	1.980
HAZBONDMG 95	95		2,2	0,7	0-0,5	Ceramic-Chem.	Magnesia	Dry	20-25	42	1.980
HAZBONDMG 90	87	4,5	1,7	3	0-0,3	Ceramic-Chem.	Magnesia	Dry	20-25		

## DOLOMITE MIXES


Product Name	Chemical Analysis (%)						Physical Properties	
	MgO	CaO	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	C	Bulk Density g/cm <sup>3</sup>	Grain Size vol. %
DUROFIL	36	62	0,5	0,5	0,5		2,45	0-6
DURAMDOL	36	62	0,5	0,5	0,5	6	2,8	0-6
VARDOL EAF (EPD-6)	37-38	57-60	0,5	0,5	0,5		≥3,1	0-6





# HAZNEDAR DURER

R E F R A C T O R I E S

 a member of Calderys

Büyük Çavuşlu Mah. Çerkezköy Cad. No:585 4930 Silivri, ISTANBUL/TURKEY  
T: +90 212 745 35 05 Fax: +90 212 745 35 15 info@hazref.com

[www.haznedardurer.com](http://www.haznedardurer.com)