



**ABS REFRACTORIES
PVT LTD**



PRODUCTS FOR DRI KILNS

High-Performance DRI Refractories



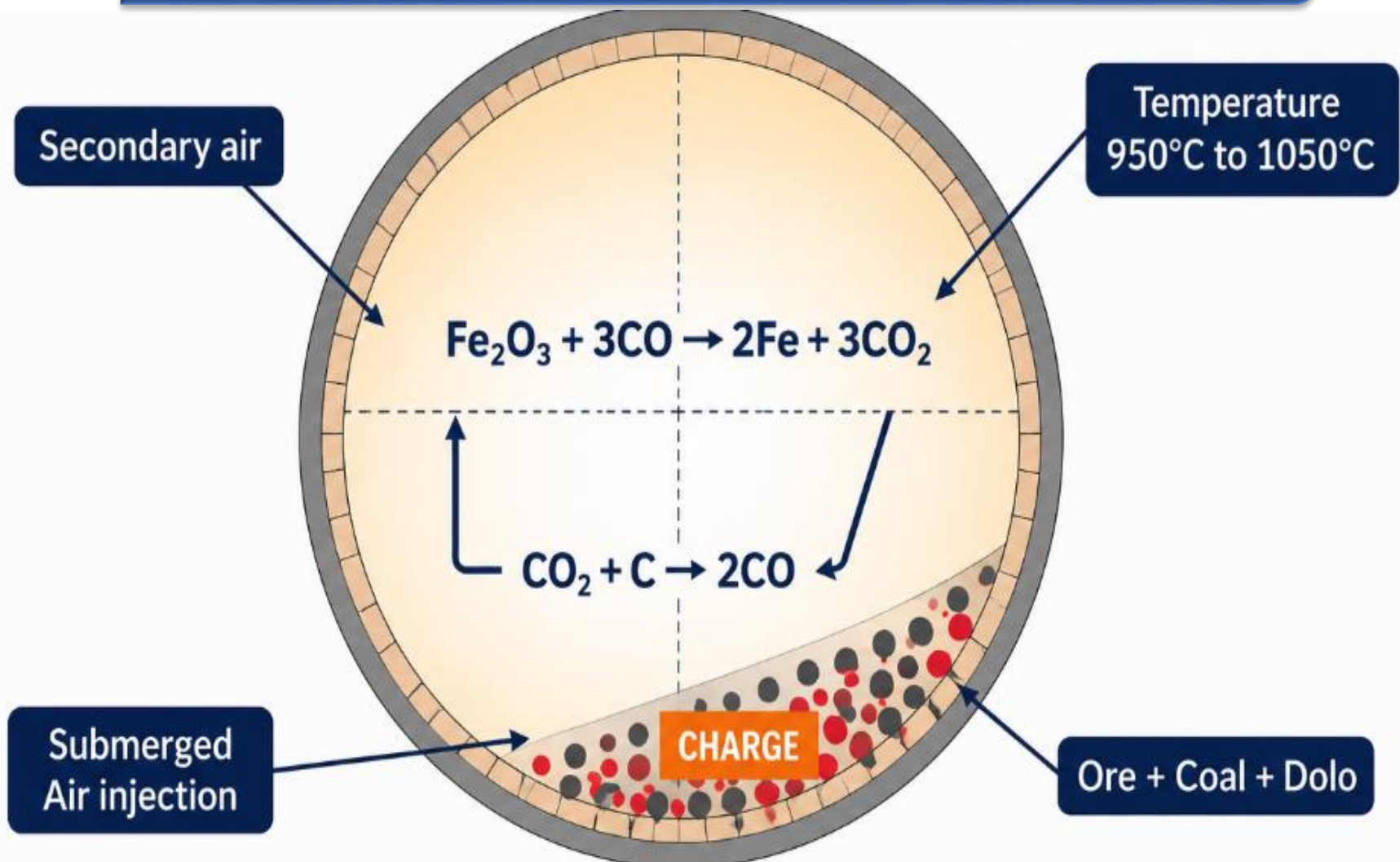


ROTARY KILN LAYOUT FOR DIRECT REDUCTION OF IRON





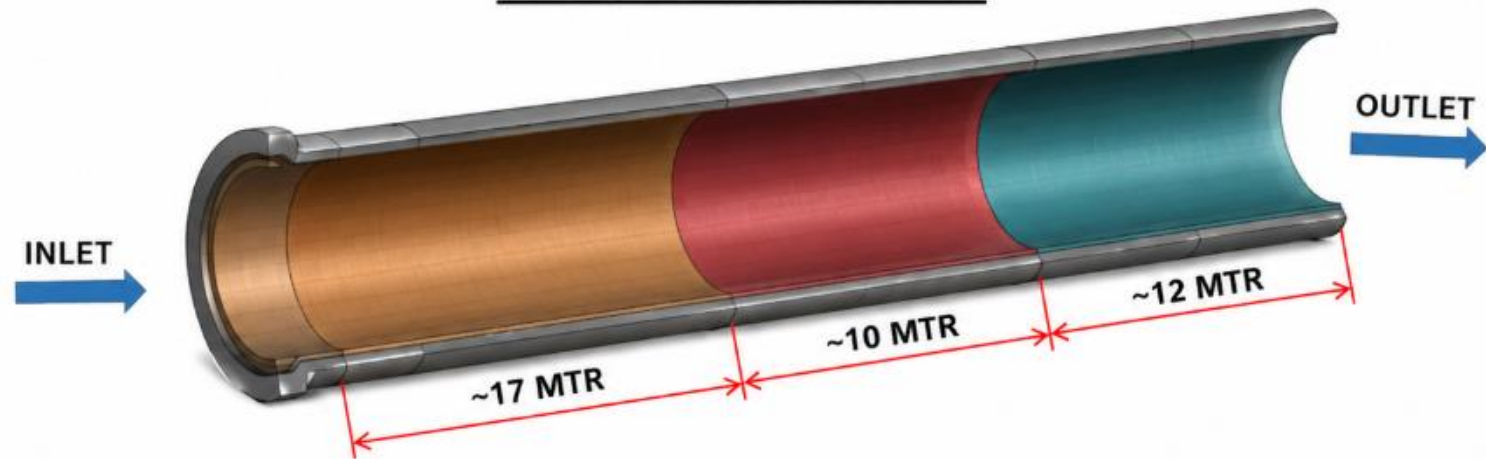
ROTARY KILN CROSS-SECTION



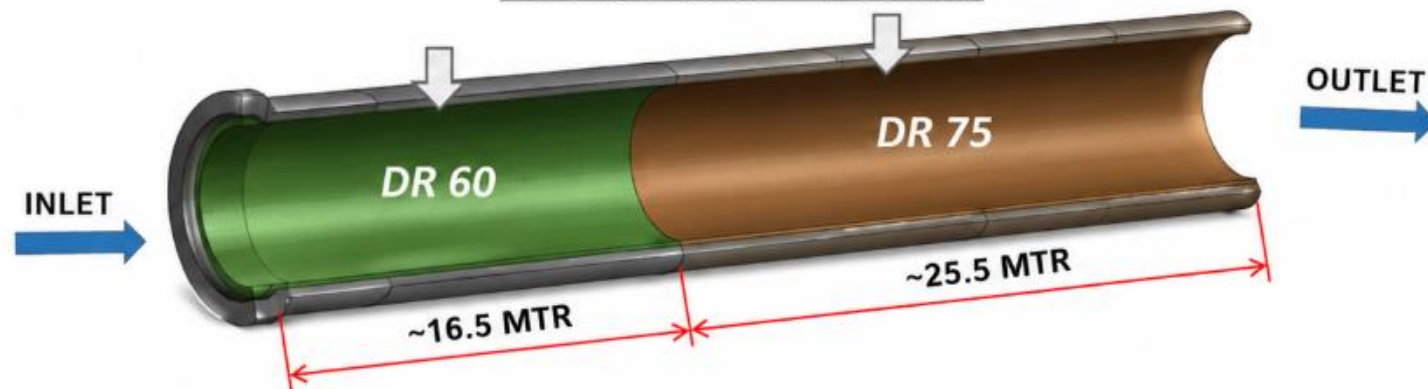


LINING PATTERN IN 100TPD KILN

PREVIOUS LINING PATTERN

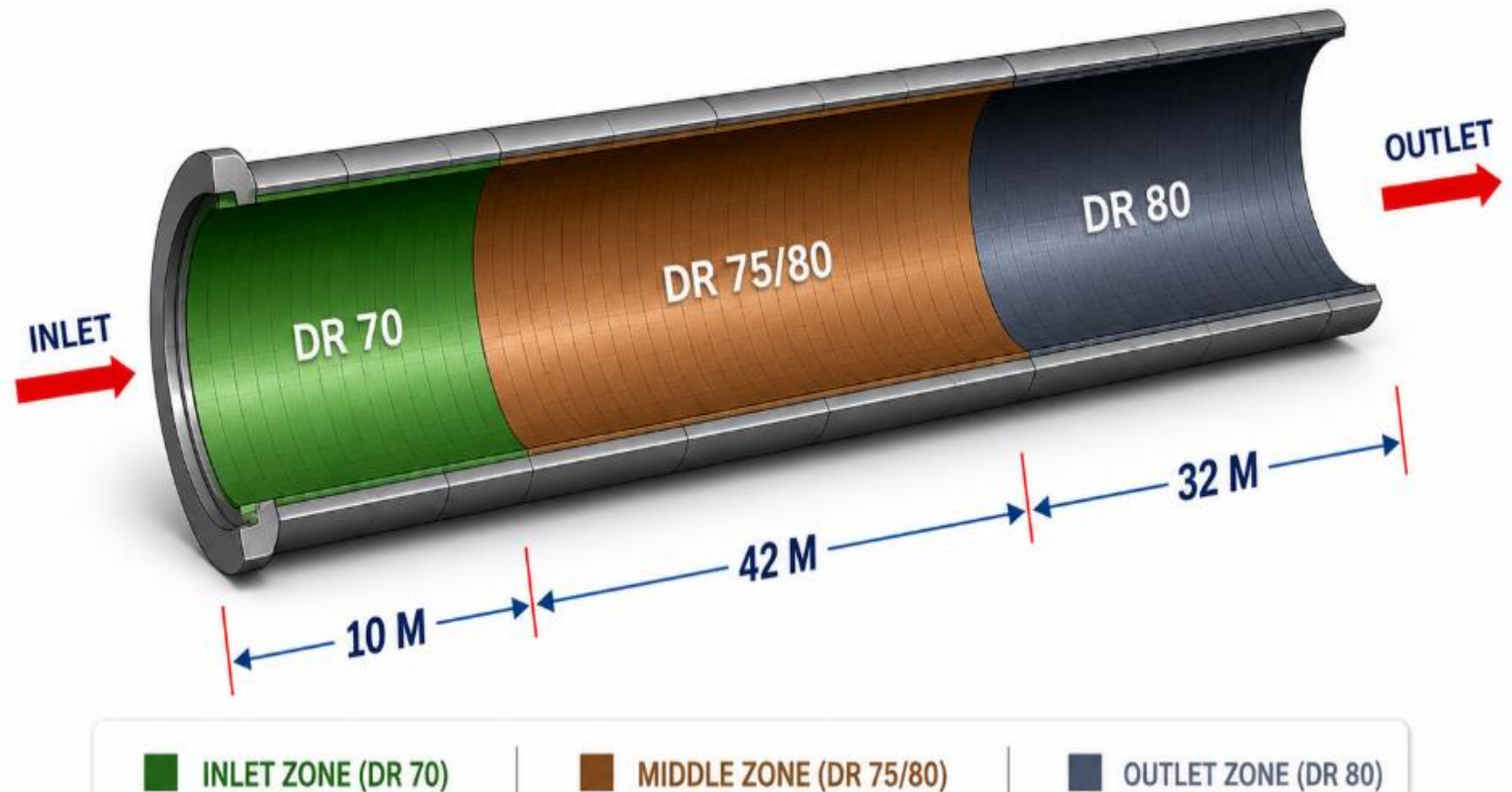


PRESENT LINING PATTERN



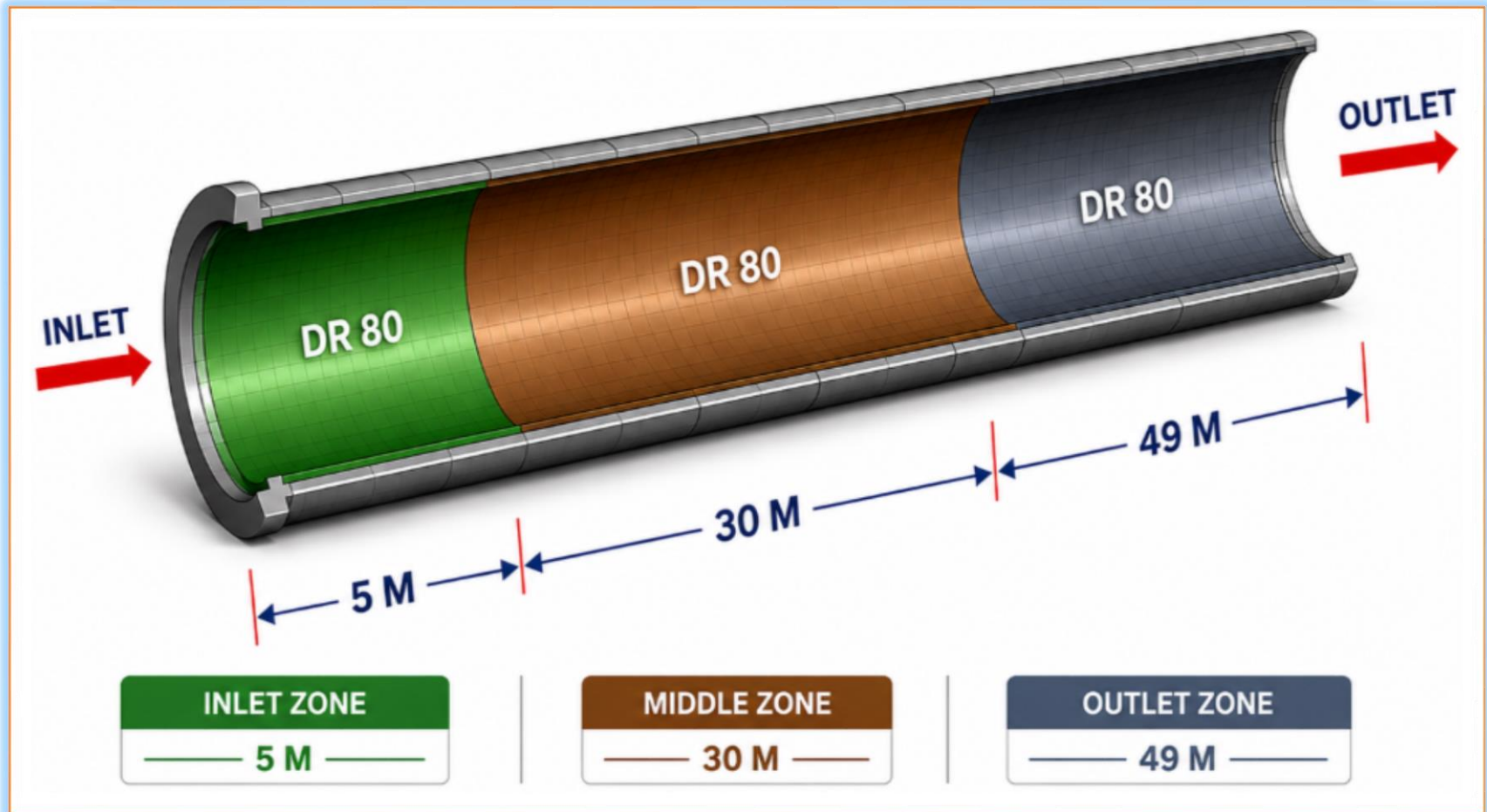


LINING PATTERN IN 350TPD KILN





LINING PATTERN IN 650TPD KILN





M CAST LC DR 60

- **M CAST LC DR 60** series is a customized product for reactor zone of DRI kilns. The series comprises of a dense, product with a high spalling and wear resistance combined penetration resistance during formation of reaction products.
- It contains special phase to restrict the penetration of accretion, leading to easy removal after campaign life.
- Mullite phase here promotes an internal expansion which limits the thermal conductivity, thus checking the shell temperature.
- The strength and iron oxide contents are designed to suit kiln capacity and input materials and products of reaction on lining of the discharge zone.



M CAST LC DR 60 (REACTOR ZONE)

Properties	Unit	Value
Al ₂ O ₃	%	60.0-62.0
Fe ₂ O ₃	%	1.2-1.5
B.D.	gm/cc	2.4-2.5
CaO	%	2.0-2.2
CCS		
At 110°C/24 Hr	kg/cm ²	700-800
1200°C/3 Hr	kg/cm ²	800-1000
PLC		
At 1200°C/3 Hr	%	+/-0.8
Thermal Conductivity at 1200°C	W/mK	1.40-1.45
Max Grain Size	mm	8



M CAST LC DR 60 A (REACTOR ZONE)

Properties	Unit	Value
Al ₂ O ₃	%	59.0-61.0
Fe ₂ O ₃	%	1.2-1.5
B.D.	gm/cc	2.4-2.5
CaO	%	2.0-2.2
CCS		
At 110°C/24 Hr	kg/cm ²	800-900
1200°C/3 Hr	kg/cm ²	1000-1200
PLC	%	
At 1200°C/3 Hr	%	+/-0.8
Thermal Conductivity at 1200°C	W/mK	1.40-1.45
Max Grain Size	mm	8



M CAST LC DR 70

M CAST LC DR 70 series is a standard product designed for reactor zone and discharge zone of high capacity DRI processing kilns above 100 TPD. It is suitable for

- High temperature and high abrasive atmosphere with superior abrasive and Spalling characteristics.
- Mullitic phases present restrict the adherence of accretion and lower thermal conductivity to impact on a consistent and controlled skin temperature of the kiln.



M CAST LC DR 70 (REACTOR & DISCHARGE ZONE)

Properties	Unit	Value
Al ₂ O ₃	%	68.0-70.0
Fe ₂ O ₃	%	1.20-1.50
B.D.	gm/cc	2.50-2.60
CaO	%	2.0-2.2
CCS		
At 110°C/24 Hr	kg/cm ²	700-800
1200°C/3 Hr	kg/cm ²	800-900
PLC	%	
At 1200°C/3 Hr	%	+/-1.0
Thermal Conductivity at 1200°C	W/mK	1.20-1.30
Max Grain Size	mm	6



M CAST LC DR 70 A (REACTOR & DISCHARGE ZONE)

Properties	Unit	Value
Al ₂ O ₃	%	69.0-71.0
Fe ₂ O ₃	%	1.30-1.50
B.D.	gm/cc	2.50-2.60
CaO	%	2.0-2.2
CCS		
At 110°C/24 Hr	kg/cm ²	750-850
1200°C/3 Hr	kg/cm ²	800-1000
PLC	%	
At 1200°C/3 Hr	%	+/-1.0
Thermal Conductivity at 1200°C	W/mK	1.20-1.30
Max Grain Size	mm	6



M CAST LC DR 75

M CAST LC DR 75 series is designed for reactor zone and discharge zone of high capacity DRI processing kilns above 100 TPD. It is currently most preferred quality in all high capacity kilns for its adaptability in :

- High temperature and high abrasive atmosphere with superior abrasive and Spalling characteristics.
- Restrict the adherence of accretion due Mullitic phases present and lower thermal conductivity for consistent and controlled skin temperature of the kiln.
- Can also withstand higher abrasion at higher production loads with pellets.



M CAST LC DR 75 (REACTOR & DISCHARGE ZONE)

Properties	Unit	Value
Al ₂ O ₃	%	74.0-75.0
Fe ₂ O ₃	%	1.20-1.50
B.D.	gm/cc	2.60-2.70
CaO	%	2.0-2.2
CCS		
At 110°C/24 Hr	kg/cm ²	800-900
1200°C/3 Hr	kg/cm ²	900-1000
PLC	%	
At 1200°C/3 Hr	%	+/-1.0
Thermal Conductivity at 1200°C	W/mK	1.20-1.30
Max Grain Size	mm	6



M CAST LC DR 80

M CAST LC DR 80 series is a customized product designed for inlet zone and discharge zone of high capacity DRI processing kilns above 100-300 TPD. It is also used for reactor zone, but advisable for inlet and discharge post reactor zone.

- Its high alumina content enhances the low and high temperature compressive strength and the abrasion resistance in the inlet zone during feeding of iron ore and coal lumps and DRI boulders at discharge.
- After formation of DRI post reactor zone its superior strength absorbs the abrasion of accretion boulders and lumps and protects the lining in during operation.



M CAST LC DR 80(INLET, REACTOR & DISCHARGE ZONE)

Properties	Unit	Value
Al ₂ O ₃	%	78.0-80.0
Fe ₂ O ₃	%	1.0-1.2
B.D.	gm/cc	2.70-2.75
CaO	%	2.0-2.2
CCS		
At 110°C/24 Hr	kg/cm ²	800-900
1200°C/3 Hr	kg/cm ²	900-1100
PLC	%	
At 1200°C/3 Hr	%	+/-1.0
Thermal Conductivity at 1200°C	W/mK	1.50-1.60
Max Grain Size	mm	8



M CAST LC DR 80 A(INLET, REACTOR & DISCHARGE ZONE)

Properties	Unit	Value
Al ₂ O ₃	%	78.0-80.0
Fe ₂ O ₃	%	1.3-1.5
B.D.	gm/cc	2.70-2.75
CaO	%	2.0-2.2
CCS		
At 110°C/24 Hr	kg/cm ²	800-900
1200°C/3 Hr	kg/cm ²	900-1100
PLC	%	
At 1200°C/3 Hr	%	+/-1.0
Thermal Conductivity at 1200°C	W/mK	1.50-1.60
Max Grain Size	mm	6



M CAST 50D/60D

M CAST 50D/60D are regular products for all low temperature abrasive areas in a DRI unit

- Made to absorb mild abrasion and medium temperature up to 1000°C, for application in After Burning Chamber (ABC) and Dust Settling Chambers (DSC) and Rotary Coolers and
- Withstands to abrasion moving DRI pellets.
- It has insulating properties to prevent heat loss from coolers to surrounding areas.
- 60D is suitable for higher abrasion resistance of bigger capacity kilns.



M CAST 50D/50 (ABC, DSC & Rotary Cooler)

Properties	Unit	Value
Al ₂ O ₃	%	48-50
Fe ₂ O ₃	%	2.0-2.5
B.D.	gm/cc	2.0-2.2
CCS		
At 110°C/24 Hr	kg/cm ²	250-350
1200°C/3 Hr	kg/cm ²	350-450
PLC	%	
At 1200°C/3 Hr	%	-2.0 to -2.5
Thermal Conductivity at 1200°C	W/mK	0.90-1.00
Grain Size	mm	5



M CAST 60D/60 (ABC, DSC & Rotary Cooler)

Properties	Unit	Value
Al ₂ O ₃	%	58-60
Fe ₂ O ₃	%	2.0-2.5
B.D.	gm/cc	2.2-2.3
CCS		
At 110°C/24 Hr	kg/cm ²	300-350
1200°C/3 Hr	kg/cm ²	350-450
PLC	%	
At 1200°C/3 Hr	%	-1.5 to -2.0
Thermal Conductivity at 1200°C	W/mK	0.90-1.0
Grain Size	mm	5



THANK YOU

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