

ROYAL REFRACTORIES

MANUFACTURERS & DEALERS IN REFRACTORIES & MINERALS

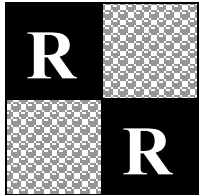
28 G.I.D.C., WANKANER – 363 622 TELEFAX : (F) (02828) 220533 , 222533 (R) 220883 , 222883

TIN G.S.T. No. 24092200055 Dtd. 23-09-05

TIN C.S.T. No. 24592200055 Dtd. 23-09-05

DENSE BRICKS

BRAND NAME	ROYAL - 30	ROYAL - 40	ROYAL - 45
<u>PHYSICAL PROPERTIES</u>			
P.C.E.-Orton / °C	28 / 1649	30 / 1665	32 / 1717
App. Porosity (%) max	26	24	21
B.D. (gm/cc) min	1.9	2.1	2.25
CCS (Kg/cm ²) min	250	350	400
<u>THERMAL PROPERTIES</u>			
RUL (Ta) °C min	1300	1400	1400
PLC(%) at °C/hrs max.	+/-1 at 1300 / 3hrs	+/-1 at 1350 / 3hrs	+/-0.8 at 1400 / 3hrs
CHEMICAL ANALYSIS			
Al ₂ O ₃ (%) min.	28	40	42
Fe ₂ O ₃ (%) max.	3.5	2.8	3.5
Size Tolerance : ± 1.5% or ± 2 mm whichever is greater.			



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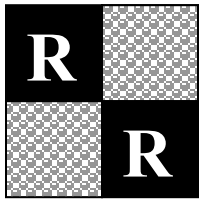
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DENSE BRICKS

BRAND NAME	ROYAL - 30D	ROYAL - 42D	ROYAL - 45D
<u>PHYSICAL PROPERTIES</u>			
P.C.E.-Orton / °C	30 / 1665	33 / 1743	34 / 1765
App. Porosity (%) max	18	17	18
B.D. (gm/cc) min	2.15	2.25	2.30
CCS (Kg/cm ²) min	400	500	500
<u>THERMAL PROPERTIES</u>			
RUL (Ta) °C min	1350	1480	1500
PLC(%) at °C/hrs max.	+/-0.8 at 1350 / 3hrs	+/-0.8 at 1450 / 3hrs	+/-0.8 at 1500/ 2hrs
CHEMICAL ANALYSIS			
Al ₂ O ₃ (%) min.	30	42	45
Fe ₂ O ₃ (%) max.	1.8	1.3	1.3
Size Tolerance : ± 1mm or ± 2 mm whichever is greater.			



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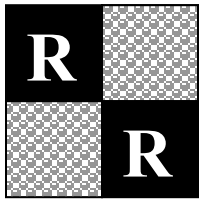
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DENSE BRICKS

BRAND NAME	ROYAL - 50	ROYAL - 60	ROYAL - 70
<u>PHYSICAL PROPERTIES</u>			
P.C.E.-Orton / °C	33 / 1743	35 / 1785	36 / 1804
App. Porosity (%) max	22	22	22
B.D. (gm/cc) min	2.35	2.50	2.60
CCS (Kg/cm ²) min	400	500	550
<u>THERMAL PROPERTIES</u>			
RUL (Ta) °C min	1410	1450	1460
PLC(%) at °C/hrs max.	+/- 1 at 1400 / 3hrs	+/- 1.8 at 1500 / 2hrs	+/- 2 at 1500/ 2hrs
<u>CHEMICAL ANALYSIS</u>			
Al ₂ O ₃ (%) min.	50	60	70
Fe ₂ O ₃ (%) max.	3.5	3.5	3.5
Size Tolerance : ± 1.5% or ± 2 mm whichever is greater.			



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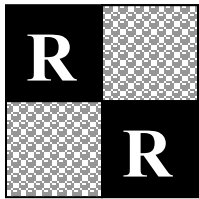
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DENSE BRICKS

BRAND NAME	ROYAL - 50D	ROYAL - 55	ROYAL - 60 spl
<u>PHYSICAL PROPERTIES</u>			
P.C.E.-Orton / °C	34 / 1765	35 / 1785	36 / 1804
App. Porosity (%) max	18	21	22
B.D. (gm/cc) min	2.35	2.40	2.45
CCS (Kg/cm ²) min	500	450	450
<u>THERMAL PROPERTIES</u>			
RUL (Ta) °C min	1500	1480	1480
PLC(%) at °C/hrs max.	+/- 0.5 at 1500 / 3hrs	+/- 1 at 1500 / 3hrs	+/- 0.8 at 1500/ 2hrs
CHEMICAL ANALYSIS			
Al ₂ O ₃ (%) min.	50	55	60
Fe ₂ O ₃ (%) max.	1.3	2.0	2.2
Size Tolerance : ± 1.5% or ± 2 mm whichever is greater.			



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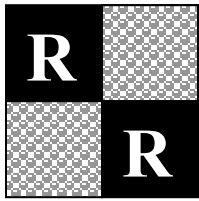
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DENSE BRICKS

BRAND NAME	ROYAL - SILL	ROYAL - 62D	ROYAL - 60 M
<u>PHYSICAL PROPERTIES</u>			
P.C.E.-Orton / °C	36 / 1804	36 / 1804	36 / 1804
App. Porosity (%) max	18	16	18
B.D. (gm/cc) min	2.45	2.50	2.45
CCS (Kg/cm ²) min	500	550	550
<u>THERMAL PROPERTIES</u>			
RUL (Ta) °C min	1500	1510	1620
PLC(%) at °C/hrs max.	+/- 0.3 at 1500 / 2hrs	+/- 0.2 at 1500 / 2hrs	+/- 0.4 at 1600/ 2hrs
<u>CHEMICAL ANALYSIS</u>			
Al ₂ O ₃ (%) min.	58	62	60
Fe ₂ O ₃ (%) max.	1.5	1.3	0.8
Size Tolerance : ± 1.5% or ± 2 mm whichever is greater.			



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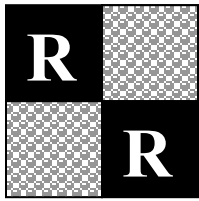
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DENSE BRICKS

BRAND NAME	ROYAL - 70 spl	ROYAL - 70 LF	ROYAL - 75
<u>PHYSICAL PROPERTIES</u>			
P.C.E.-Orton / °C	37 / 1820	37 / 1820	37 / 1820
App. Porosity (%) max	22	22	22
B.D. (gm/cc) min	2.60	2.55	2.65
CCS (Kg/cm ²) min	600	600	600
<u>THERMAL PROPERTIES</u>			
RUL (Ta) °C min	1460	1480	1480
PLC(%) at °C/hrs max.	+/- 2 at 1500 / 2hrs	+/- 2 at 1500 / 2hrs	+/- 2 at 1500 / 2hrs
<u>CHEMICAL ANALYSIS</u>			
Al ₂ O ₃ (%) min.	70	70	75
Fe ₂ O ₃ (%) max.	3	2.5	3.5
Size Tolerance : ± 1.5% or ± 2 mm whichever is greater.			



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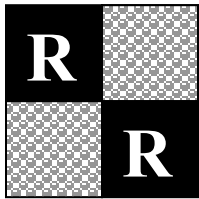
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DENSE BRICKS

BRAND NAME	ROYAL - 70 L	ROYAL - 70 M
<u>PHYSICAL PROPERTIES</u>		
P.C.E.-Orton / °C	37 / 1820	37 / 1820
App. Porosity (%) max	18	18
B.D. (gm/cc) min	2.60	2.55
CCS (Kg/cm ²) min	600	600
<u>THERMAL PROPERTIES</u>		
RUL (Ta) °C min	1550	1650
PLC(%) at °C/hrs max.	+/- 0.5 at 1550 / 2hrs	+/- 0.3 at 1600/ 2hrs
<u>CHEMICAL ANALYSIS</u>		
Al ₂ O ₃ (%) min.	70	70
Fe ₂ O ₃ (%) max.	1.5	0.4
Size Tolerance : ± 1.5% or ± 2 mm whichever is greater.		



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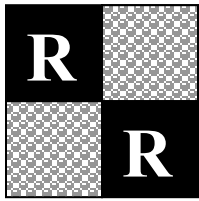
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DENSE BRICKS

BRAND NAME	ROYAL - 80B	ROYAL - 80	ROYAL - 80P
<u>PHYSICAL PROPERTIES</u>			
P.C.E.-Orton / °C	37 / 1820	37 / 1820	37 / 1820
App. Porosity (%) max	20	18	17
B.D. (gm/cc) min	2.75	2.75	2.75
CCS (Kg/cm ²) min	700	700	750
<u>THERMAL PROPERTIES</u>			
RUL (Ta) °C min	1500	1550	1540
PLC(%) at °C/hrs max.	+/- 1.20 at 1550 / 2hrs	+/- 0.8 at 1550 / 2hrs	+/- 1 at 1550/ 2hrs
<u>CHEMICAL ANALYSIS</u>			
Al ₂ O ₃ (%) min.	79	79	80
Fe ₂ O ₃ (%) max.	1.90	1.40	1.40
P ₂ O ₅ (%) max.	-	-	1.5
Size Tolerance : ± 1.5% or ± 1.5 mm whichever is greater.			



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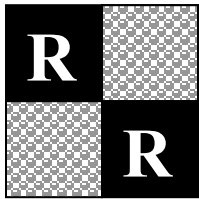
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DENSE BRICKS

BRAND NAME	ROYAL - 85	ROYAL - 85P
<u>PHYSICAL PROPERTIES</u>		
P.C.E.-Orton / °C	38 / 1835	38 / 1835
App. Porosity (%) max	18	17
B.D. (gm/cc) min	2.80	2.80
CCS (Kg/cm ²) min	750	800
<u>THERMAL PROPERTIES</u>		
RUL (Ta) °C min	1550	1550
PLC(%) at °C/hrs max.	+/- 0.8 at 1550 / 2hrs	+/- 0.8 at 1550/ 2hrs
<u>CHEMICAL ANALYSIS</u>		
Al ₂ O ₃ (%) min.	84	84
Fe ₂ O ₃ (%) max.	1.3	1.3
P ₂ O ₅ (%) max.	-	1.5
Size Tolerance : ± 1% or ± 1.5 mm whichever is greater.		



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DENSE BRICKS

BRAND NAME	ROYAL - 90	ROYAL - 90D
<u>PHYSICAL PROPERTIES</u>		
P.C.E.-Orton / °C	38 / 1835	38 / 1835
App. Porosity (%) max	16	18
B.D. (gm/cc) min	2.90	2.90
CCS (Kg/cm ²) min	800	800
<u>THERMAL PROPERTIES</u>		
RUL (Ta) °C min	1580	1630
PLC(%) at °C/hrs max.	+/- 0.5 at 1550 / 2hrs	+/- 0.3 at 1600/ 2hrs
<u>CHEMICAL ANALYSIS</u>		
Al ₂ O ₃ (%) min.	90	90
Fe ₂ O ₃ (%) max.	1.21	0.3
Size Tolerance : ± 1 mm or ± 2 mm whichever is greater.		