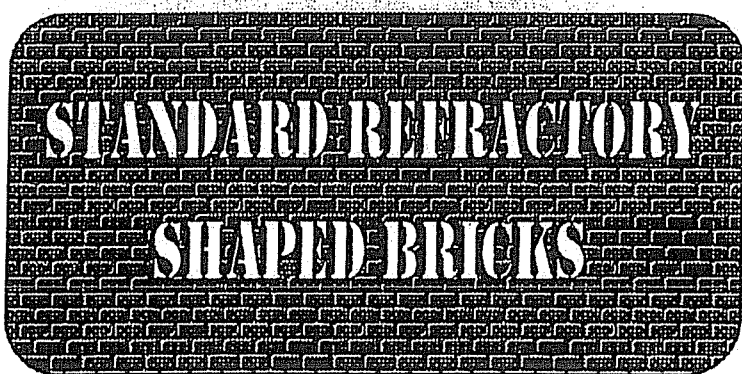
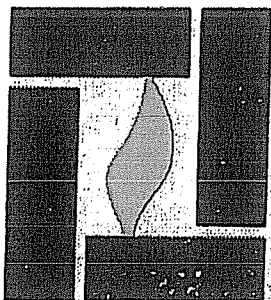


شرکت فرآورده های سوز آذر

AZAR REFRACTORIES CO.



اصفهان، کیلومتر ۵۰ جاده اصفهان-شهرکرد، منطقه صنعتی فولاد

50th Km of Esfahan-shahrekord road
Steel Industrial Zone , Esfahan-Iran

Version 2013

INTRODUCTION

Azar Refractories co. With 20 years of valuable experience in the field of Alumina - Silicate, Basic and Carbon Composite materials is the leader on meeting the highly growing demands of the Iranian high temperature industries, Azar is the major supplier and the largest refractory company of Iran with over 100,000 ton anual manufacturing capacity. Sole producer of dolomite based refractories, which are the essential tools of todays clean steel products.

Azar Research Center (ARC) is equipped with the latest analytical instruments in laboratory and pilot scales. ARC has a leading role on Azar's research and developments programs as well as on the quality contorol of our products. ARC perform microstructural characterisation of materials, and investigate their thermal history in manufacturing and in use. Chemical analysis and assessment of mechanical properties can be included as part of report to the investigations.

Azar's confidential consultancy service includes input in to the design of quality standards and proceedures to ensure that incoming materials from suppliers to the client are of the required performance, We also offer a routine quality analytical service when this is considered appropriate.

Azar's major manufacturing site is located within the Esfahan Iron and Steel plant, taking the advantage from variety of the existing workshops including grading, mixing, pressing, firing and monolithic halls, design and engineering departments. Azar with a unique unit has the capability of producing over 250,000 ton per year of quick lime using four rotary and shaft kilns. The pressing hall is equipped with 13 different presses of hydrolic, mechanical and frictional types with capacities up to 1600 tons. The shaped materials can be fired or tempered using our two tunnel kilns and a low temperature shuttle furnace, Calcined and dead-burned materials are produced using three rotary kilns with temperature up to 1750°C.

Azar is Currently on the way to expand its manufacturing capacity to produce top quality castables in a new site.

Azar is a name in Iran to reckon with high temperature industries.

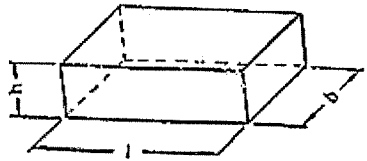
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1

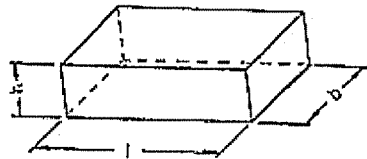
STRAIGHT BRICKS

3-6



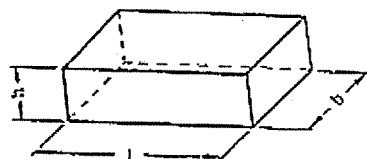
STRAIGHT BRICKS

CODE NO :	MARK	DIMENSIONS in mm			VOL. dm ³	WEIGHT - Kg		
		l	b	h		2.2	2.4	2.5
30101	1	230	114	64	1.68	3.70	4.03	4.20
30102	2	250	124	64	1.98	4.30	4.70	4.90
30103	3	300	150	64	2.88	6.30	6.90	7.20
30105	1-76	230	114	76	1.99	4.30	4.70	4.90
30107	2-76	250	124	76	2.36	5.19	5.66	5.90
30108	3-76	300	150	76	3.42	7.50	8.20	8.50
	THREE							
	FOURTH							
30114	1k	172	114	64	1.25	2.75	3.00	3.12
30115	2k	187	124	64	1.48	3.26	3.55	3.70
30116	3k	225	150	64	2.16	4.75	5.18	5.40
30119	1K-76	172	114	76	1.49	3.28	3.58	3.72
30120	2K-76	187	124	76	1.76	3.87	4.22	4.40
30121	3K-76	225	150	76	2.57	5.65	6.17	6.42
	BONDERS							
30127	1B	230	172	64	2.53	5.50	6.10	6.30
30128	2B	250	187	64	2.99	6.50	7.10	7.40
30129	3B	300	225	64	4.32	9.50	10.30	10.80



STRAIGHT BRICKS

CODE NO :	MARK	DIMENSIONS in mm			VOL. dm ³	WEIGHT - Kg		
		l	b	h		2 . 2	2 . 4	2 . 5
30132	1B-76	230	172	76	3.01	6.60	7.20	7.50
30133	2B-76	250	187	76	3.55	7.80	8.50	8.80
30134	3B-76	300	225	76	5.13	11.20	12.30	12.80
	WHELPS							
30140	1L	345	114	64	2.52	5.50	6.10	6.30
30141	2L	375	124	64	2.98	6.50	7.10	7.40
30142	3L	450	150	64	4.32	6.50	7.10	5.40
30145	1L-76	345	114	76	2.99	6.58	7.18	7.48
30146	2L-76	375	124	76	3.53	7.76	8.47	8.82
30147	3L-76	450	150	76	5.13	11.20	12.30	12.80
	SPLITS							
30153	1-32	230	114	32	0.84	1.80	2.00	2.10
30154	2-32	250	124	32	0.99	2.10	2.30	2.40
30155	3-32	300	150	32	1.44	3.10	3.40	3.60
30158	2-40	250	124	40	1.24	2.70	2.90	3.10
30161	1-38	230	114	38	1.00	2.20	2.40	2.50
30162	2-38	250	124	38	1.18	2.60	2.80	2.90
30163	3-38	300	150	38	1.71	3.80	4.10	4.30



STRAIGHT BRICKS

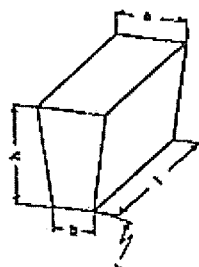
CODE NO :	MARK	DIMENSIONS in mm			VOL. dm ³	WEIGHT - Kg		
		l	b	h		2 . 2	2 . 4	2 . 5
	DOUBLE STRAIGHTS							
30169	1D	230	230	64	3.39	7.40	8.10	8.50
30170	2D	250	250	64	4.00	8.80	9.60	10.00
30171	3D	300	300	64	5.76	12.70	13.80	14.40
30174	1D-76	230	230	76	4.02	8.80	9.60	10.00
30175	2D-76	250	250	76	4.75	10.40	11.40	11.90
30176	3D-76	300	300	76	6.84	15.00	16.40	17.10
	TILE STRAIGHTS							
30182	P3	500	250	64	8.00	17.60	19.20	20.20
30183	P4	375	250	64	6.00	13.20	14.40	15.00
30184	P5	500	375	64	12.00	26.40	28.80	30.00
30185	P6	500	500	64	16.00	35.20	38.40	40.00
30188	P7	500	375	100	18.75	41.20	45.00	46.80
30189	P9	500	500	100	25.00	55.00	60.00	62.50
30192	P12	375	250	130	12.19	26.80	29.30	30.50

2

SIDE ARCH BRICKS

7-9

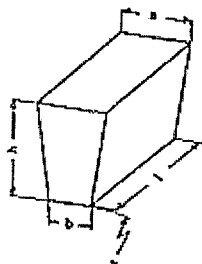
ARCH BRICKS



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	r	
30201	1H6	67	61	114	230	6	1197	1.68
30202	1H10	69	59	114	230	10	695	1.68
30203	1H16	72	56	114	230	16	413	1.68
30204	1H24	76	52	114	230	24	257	1.68
30205	1H26	77	51	114	230	26	240	1.68
30206	1H50	89	39	114	230	50	93	1.68
30209	2H6	67	61	124	250	6	1302	1.98
30210	2H10	69	59	124	250	10	756	1.98
30211	2H16	72	56	124	250	16	450	1.98
30212	2H24	76	52	124	250	24	279	1.98
30213	2H26	77	51	124	250	26	260	1.98
30214	2H50	89	39	124	250	50	102	1.98
30217	3H6	67	61	150	300	6	1575	2.88
30218	3H10	69	59	150	300	10	915	2.88
30219	3H16	72	56	150	300	16	544	2.88
30220	3H24	76	52	150	300	24	338	2.88
30221	3H26	77	51	150	300	26	310	2.88
30222	3H50	89	39	150	300	50	123	2.88

k = a - b
r = RADIUS

ARCH BRICKS



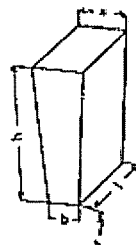
CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	r	
30225	2HL6	67	61	124	375	6	1302	2.98
30226	2HL10	69	59	124	375	10	756	2.98
30227	2HL16	72	56	124	375	16	450	2.98
30228	2HL24	76	52	124	375	24	279	2.98
30229	2HL26	77	51	124	375	26	260	3.98
30230	2HL50	89	39	124	375	50	102	2.98
30233	3HK6	68	62	150	200	6	1600	1.95
30234	3HK10	70	60	150	200	10	930	1.95
30235	3HK16	73	57	150	200	16	550	1.95
30236	3HK24	76	52	150	200	24	337	1.95
30237	3HK26	77	51	150	200	26	310	1.95
30238	3HK50	89	39	150	200	50	125	1.95

k = a - b
r = RADIUS

3

END ARCH BRICKS

10 - 13



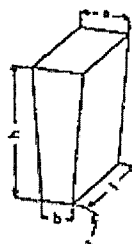
WEDGE BRICKS

CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	r	
30301	1G4	66	62	230	114	4	3680	1.68
30302	1G6	67	61	230	114	6	2415	1.68
30303	1G10	69	59	230	114	10	1403	1.68
30304	1G16	72	56	230	114	16	834	1.68
30305	1G24	76	52	230	114	24	518	1.68
30306	1G26	77	51	230	114	26	480	1.68
30307	1G50	89	39	230	114	50	189	1.68
30308	1G52	91	39	230	114	52	180	1.68
30314	1GB4	66	62	230	172	4	3680	2.53
30315	1GB6	67	61	230	172	6	2415	2.53
30316	1GB10	69	59	230	172	10	1403	2.53
30317	1GB16	72	56	230	172	16	834	2.53
30318	1GB24	76	52	230	172	24	518	2.53
30319	1GB26	77	51	230	172	52	480	2.53
30320	1GB50	89	39	230	172	50	189	2.53
30326	1GG4	66	62	230	230	4	3680	3.39
30327	1GG6	67	61	230	230	6	2415	3.39
30328	1GG10	69	59	230	230	10	1403	3.39

k = a - b

r = RADIUS

WEDGE BRICKS

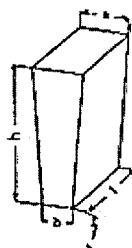


CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	r	
30329	1GG16	72	56	230	230	16	834	3.39
30330	1GG24	76	52	230	230	24	518	3.39
30331	1GG26	77	51	230	230	26	480	3.39
30332	1GG50	89	39	230	230	50	189	3.39
30338	2G4	66	62	250	124	4	4000	1.98
30339	2G6	67	61	250	124	6	2625	1.98
30340	2G10	69	59	250	124	10	1525	1.98
30341	2G16	72	56	250	124	16	906	1.98
30342	2G24	76	52	250	124	24	563	1.98
30343	2G50	89	39	250	124	50	205	1.98
30349	2GB4	66	62	250	124	4	4000	2.99
30350	2GB6	67	61	250	187	6	2625	2.99
30351	2GB10	69	59	250	187	10	1525	2.99
30352	2GB16	72	56	250	187	16	906	2.99
30353	2GB24	76	52	250	187	24	563	2.99
30354	2GB50	89	39	250	187	50	205	2.99
30360	2GG4	66	62	250	250	4	4000	4.00
30361	2GG6	67	61	250	250	6	2625	4.00

k = a - b

r = RADIUS

WEDGE BRICKS



CODE NO :	MARK	DIMENSIONS in mm						VOL. dm ³
		a	b	h	l	k	r	
30362	2GG10	69	59	250	250	10	1525	4.00
30363	2GG16	72	56	250	250	16	906	4.00
30364	2GG24	76	52	250	250	24	563	4.00
30365	2GG26	77	51	250	250	26	520	4.00
30366	2GG50	89	39	250	250	50	205	4.00
30367	2GG52	90	38	250	250	52	200	4.00
30373	G11	85	65	300	150	11	1005	3.38
30374	G31	71	65	300	150	31	3350	3.06
30375	G51	69	65	300	150	51	5025	3.02
30381	GB11	85	65	300	225	11	1005	5.06
30382	GB31	71	65	300	225	31	3350	4.59
30383	GB51	69	65	300	225	51	5025	4.52

$k = a - b$

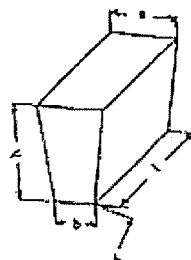
$r = \text{RADIUS}$

4

LADLE BRICKS

14 - 17

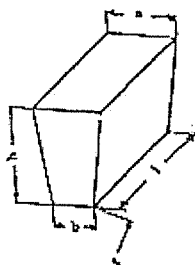
LADLE BRICKS



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	r	
30401	1P8	129	121	90	250	8	1381	2.81
30402	1P18	134	116	90	250	18	590	2.81
30403	1P26	138	112	90	250	26	395	2.81
30405	1P37	143	106	90	250	37	263	2.81
30406	1P0	125	125	90	250	-	-	2.81
30412	2P10	130	120	124	250	10	1513	3.88
30413	2P24	137	113	124	250	24	594	3.88
30414	2P0	125	125	124	250	-	-	3.88
30420	3P8	104	96	155	250	8	1898	3.88
30421	3P10	105	95	155	250	10	1504	3.88
30422	3P20	110	90	155	250	20	713	3.88
30423	3P0	100	100	155	250	-	-	3.88
30429	4P8	104	96	187	250	8	2291	4.68
30430	4P10	105	95	187	250	10	1814	4.68
30431	4P12	106	94	187	250	12	1496	4.68
30432	4P22	111	89	187	250	22	774	4.68
30433	4P0	100	100	187	250	-	-	4.68

k = a - b
r = RADIUS

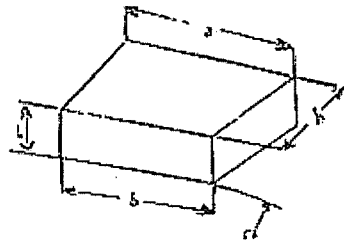
LADLE BRICKS



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	r	
30439	5P8	104	96	220	250	8	2695	5.50
30440	5P12	106	94	220	250	12	1760	5.50
30441	5P16	108	92	220	250	16	1293	5.50
30442	5P22	111	89	220	250	22	910	5.50
30443	5P0	100	100	220	250	-	-	5.50
30449	6P10	105	95	250	250	10	2425	6.25
30450	6P14	107	93	250	250	14	1696	6.25
30451	6P18	109	91	250	250	18	1292	6.25
30452	6P26	113	87	250	250	26	856	6.25
30453	6P0	100	100	250	250	-	-	6.25
30459	7P12	106	94	280	250	12	2240	7.00
30460	7P18	109	91	280	250	18	1447	7.00
30461	7P0	100	100	280	250	-	-	7.00

k = a - b

r = RADIUS



LADLE BRICKS

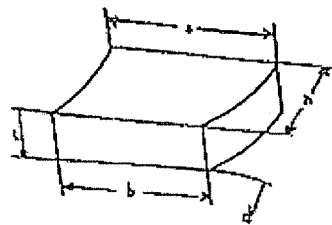
CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	r	
30467	15/40-10	240	200	150	100	40	750	3.30
30468	15/25-10	225	200	150	100	25	1200	3.19
30469	15/13-10	213	200	150	100	13	2308	3.10
30475	18/48-10	248	200	180	100	48	750	4.03
30476	18/30-10	230	200	180	100	30	1200	3.87
30477	18/16-10	216	200	180	100	16	2250	3.74
30483	22/59-10	259	200	220	100	59	746	5.05
30484	22/37-10	237	200	220	100	37	1189	4.81
30485	22/19-10	219	200	220	100	19	2316	4.61
30487	15/40-12	240	200	150	125	40	750	4.13
30488	15/25-12	225	200	150	125	25	1200	3.98
30489	15/13-12	213	200	150	125	13	2308	3.87
30492	18/48-12	248	200	180	125	48	750	5.04
30493	18/30-12	230	200	180	125	30	1200	4.84
30494	18/16-12	216	200	180	125	16	2250	4.68
30497	22/59-12	259	200	220	125	59	746	6.31
30498	22/37-12	237	200	220	125	37	1189	6.01
30499	22/19-12	219	200	220	125	19	2316	5.76

k = a . h

r = RADIUS

5

SEMI - UNIVERSAL SHAPES OF LADLE BRICKS 18 - 19



SEMI - UNIVERSAL SHAPES

CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	d	
30501	SU430-4	210	188.7	101.6	100	21	1802	2.03
30502	SU445-4	210	195.8	101.6	100	14	2805	2.06
30508	SU530-4	210	183.4	127.0	100	27	1751	2.50
30509	SU545-4	210	192.3	127.0	100	18	2754	2.55
30510	SU560-4	210	196.7	127.0	100	13	3757	2.58
30516	SU630-4	210	178.1	152.4	100	32	1701	2.96
30517	SU645-4	210	188.7	152.4	100	21	2703	3.04
30518	SU650-4	210	194	152.4	100	16	3706	3.08
30524	SU745-4	210	185.2	177.8	100	25	2652	3.51
30525	SU760-4	210	191.4	177.8	100	19	3655	3.57
30531	SU845-4	210	181.6	203.2	100	28	2602	3.98
30532	SU860-4	210	188.7	203.2	100	21	3604	4.05
30538	SU945-4	210	178.1	228.6	100	32	2551	4.44
30439	SU960-4	210	186.1	228.6	100	24	3554	4.53

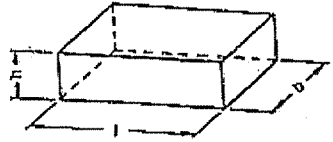
k = a - b

d = DIAMETER

6

LADLE BRICKS FOR BOTTOM

20 - 21



LADLE BOTTOM BRICKS

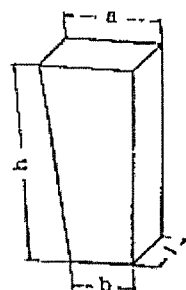
CODE NO :	MARK	DIMENSIONS in mm			VOL. dm ³	WEIGHT - Kg		
		l	b	h		2 . 2	2 . 4	2 . 5
30601	B1	187	155	124	3.59	7.90	9.30	9.40
30607	B2	210	187	155	6.09	13.30	14.50	15.20
30613	B3	340	210	88	6.28	13.81	15.07	15.70

7

KEY BRICKS FOR STEEL MELTING

22 - 26

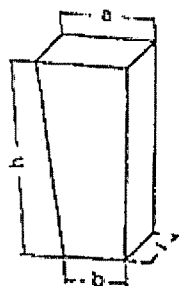
KEY BRICKS



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	d	
30701	25/60	180	120	250	100	60	1000	3.75
30702	25/30	165	135	250	100	30	2250	3.75
30703	25/16	158	142	250	100	16	4438	3.75
30704	25/8	154	146	250	100	8	9125	3.75
30705	25/0	150	150	250	100	-	-	3.75
30711	30/70	185	115	300	100	70	986	4.50
30712	30/40	170	130	300	100	40	1950	4.50
30713	30/20	160	140	300	100	20	4200	4.50
30714	30/8	154	146	300	100	8	10950	4.50
30715	30/0	150	150	300	100	-	-	4.50
30721	35/80	190	110	350	100	80	963	5.25
30722	35/40	170	130	350	100	40	2275	5.25
30723	35/20	160	140	350	100	20	4900	5.25
30724	35/8	154	146	350	100	8	12775	5.25
30725	35/0	150	150	350	100	-	-	5.25
30731	40/80	190	110	400	100	80	1100	6.00
30732	40/40	170	130	400	100	40	2600	6.00

k = a . b
d = DIAMETER

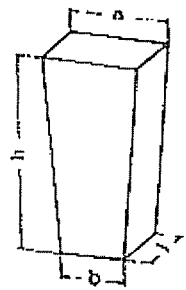
KEY BRICKS



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	d	
30733	40/20	160	140	400	100	20	5600	6.00
30734	40/8	154	146	400	100	8	14600	6.00
30735	40/0	150	150	400	100	-	-	6.00
30741	45/90	195	105	450	100	90	1050	6.75
30742	45/40	170	130	450	100	40	2925	6.75
30743	45/20	160	140	450	100	20	6300	6.75
30744	45/8	154	146	450	100	8	16425	6.75
30745	45/0	150	150	450	100	-	-	6.75
30751	50/100	200	100	500	100	100	1000	7.50
30752	50/60	180	120	500	100	60	2000	7.50
30753	50/36	168	132	500	100	36	3667	7.50
30754	50/20	160	140	500	100	20	7000	7.50
30755	50/8	154	146	500	100	8	18250	7.50
30756	50/0	150	150	500	100	-	-	7.50
30761	55/110	205	95	550	100	110	950	8.25
30762	55/60	180	120	550	100	60	2200	8.25
30763	55/36	168	132	550	100	36	4033	8.25

k = a - b

d = DIAMETER



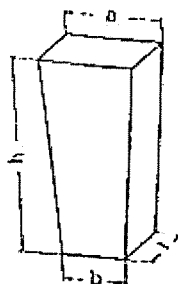
KEY BRICKS

CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	d	
30764	55/20	160	140	550	100	20	7700	8.25
30765	55/8	154	146	550	100	8	20075	8.25
30766	55/0	150	150	550	100	-	-	8.25
30772	60/120	210	90	600	100	120	900	9.00
30773	60/60	180	120	600	100	60	2400	9.00
30774	60/36	168	132	600	100	36	4400	9.00
30775	60/20	160	140	600	100	20	8400	9.00
30776	60/8	154	146	600	100	8	21900	9.00
30777	60/0	150	150	600	100	-	-	9.00
30783	65/120	210	90	650	100	120	975	9.75
30784	65/60	180	120	650	100	60	2600	9.75
30785	65/36	168	132	650	100	36	4767	9.75
30786	65/20	160	140	650	100	20	9100	9.75
30787	65/8	154	146	650	100	8	23725	9.75
30788	65/0	150	150	650	100	-	-	9.75
30794	70/120	210	90	700	100	120	1050	10.50
30795	70/60	180	120	700	100	60	2800	10.50

k = a - b

d = DIAMETER

KEY BRICKS



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	d	
30796	70/36	168	132	700	100	36	5133	10.50
30797	70/20	160	140	700	100	20	9800	10.50
30798	70/8	154	146	700	100	8	25550	10.50
30799	70/0	150	150	700	100	-	-	10.50

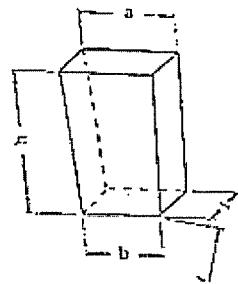
k = a - b

d = DIAMETER



KEY BRICKS

27 - 30

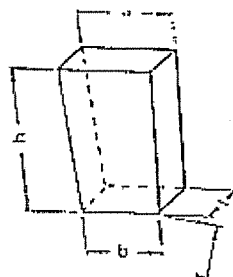


KEY BRICKS

CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	r	
30801	1Q50	139	89	230	64	50	419	1.68
30802	1Q28	128	100	230	64	28	838	1.68
30803	1Q14	121	107	230	64	14	1791	1.68
30804	1Q10	119	109	230	64	10	2553	1.68
30805	1QB	179	165	230	64	14	2744	2.53
30811	2Q50	149	99	250	64	50	505	1.98
30812	2Q28	138	110	250	64	28	1000	1.98
30813	2Q14	131	117	250	64	14	2125	1.98
30814	2Q10	129	119	250	64	10	3025	1.98
30815	2QB	192	182	250	64	10	4600	2.99
30821	1Q50-76	139	89	230	76	50	419	1.99
30822	1Q28-76	128	100	230	76	28	838	1.99
30823	1Q14-76	121	107	230	76	14	1791	1.99
30824	1Q10-76	119	109	230	76	10	2553	1.99
30825	1QB-76	179	165	230	76	14	2744	3.01
30831	2Q50-76	149	99	250	76	50	505	2.36
30832	2Q28-76	138	110	250	76	28	1000	2.36

k = a - b
r = RADIUS

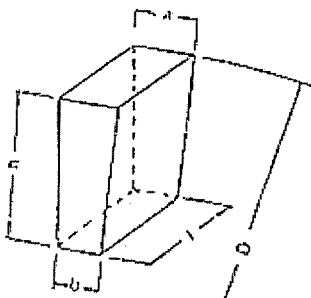
KEY BRICKS



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	r	
30833	2Q14-76	131	117	250	76	14	2125	2.36
30834	2Q10-76	129	119	250	76	10	3025	2.36
30835	2QB-76	192	182	250	76	10	4600	3.55
30841	Q081-76	152	110	300	76	42	800	2.99
30842	Q151-76	132	110	300	76	22	1527	2.76
30843	Q31-76	121	110	300	76	11	3055	2.63
30844	Q51-76	117	110	300	76	7	4800	2.59
30845	Q61-76	116	110	300	76	6	5600	2.58
30846	Q71-76	115	110	300	76	5	6720	2.57
30847	QB1-76	175	165	300	76	10	5010	3.88
30853	E08-76	158	110	350	76	48	817	3.56
30854	E15-76	136	110	350	76	26	1508	3.27
30855	E30-76	123	110	350	76	13	3015	3.10
30861	Q52-76	118	110	375	76	8	5250	3.25
30862	Q62-76	117	110	375	76	7	6000	3.24
30863	Q72-76	116	110	375	76	6	7000	3.22
30864	QB2-76	117	165	375	76	48	5219	4.87

k = a - b
r = RADIUS

ARCH BRICKS (OUTSIDE TAPER 103 mm $\frac{11}{3}$)



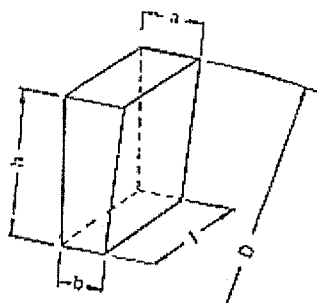
CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	D	
30991	210	103	93	100	198	10	2034	1.94
30992	310	103	96			7	3034	1.97
30993	410	103	98			5	4106	1.99
30994	610	103	99			4	6158	2.01
30995	810	103	100			3	8054	2.01
30996	10	85	80	114	198	5	*	1.63
30997	P10	68	64			4	*	1.31
30998	2114	103	91			12	2040	2.19
30999	3114	103	95			8	3060	2.24
31000	4114	103	97			6	4046	2.26
31101	6114	103	99	114	198	4	5668	2.28
31102	8114	103	100			3	7958	2.29
31103	14	85	80			5	*	1.86
31104	P14	68	64			4	*	1.49

k = a - b

* = CLOSER BRICK

D = DIAMETER WITH 1.7mm JOINT

ARCH BRICKS (OUTSIDE TAPER 103 mm ¹¹/₃)

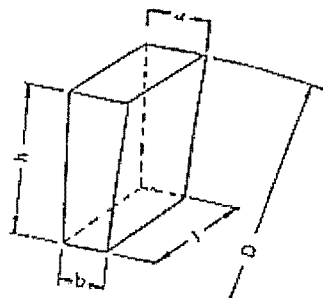


CODE NO :	MARK	DIMENSIONS in mm						VOL. dm ³
		a	b	h	I	k	D	
30901	215	103	87.5	150	198	16	2026	2.83
30902	315	103	92.5			11	2991	2.91
30903	415	103	95.0			8	3936	2.94
30904	515	103	97.0			6	5235	2.97
30905	615	103	98.0			6	6282	2.98
30906	815	103	99			4	7852	3.00
30907	15	85	80			5	*	2.45
30908	P15	68	64	160	198	4	*	1.96
30914	216	103	86			17	1971	2.99
30915	316	103	92			11	3046	3.09
30916	416	103	94.5			9	3942	3.13
30917	516	103	96.5			6	5154	3.16
30918	616	103	97.5			6	6092	3.18
30919	716	103	98.3			5	7129	3.19
30920	16	85	80			5	*	2.61
30921	P16	68	64			4	*	2.09

k = a - b

* = CLOSER BRICK

D = DIAMETER WITH 1.7mm JOINT



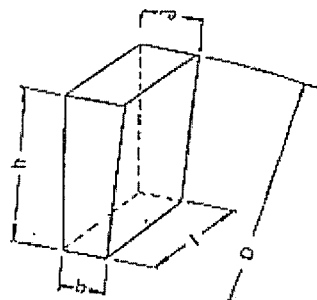
ARCH BRICKS (OUTSIDE TAPER 103 mm ¹³/3)

CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	D	
30927	218	103	84	180	198	19	1984	3.33
30928	318	103	90.5			13	3015	3.45
30929	418	103	93.5			10	3968	3.50
30930	518	103	95.5			6	5026	3.54
30931	618	103	97			9	6282	3.56
30932	718	103	97.5			6	7112	3.58
30933	18	85	80	200	198	5	*	2.94
30934	P18	68	64			4	*	2.35
30940	220	103	82			21	1994	3.66
30941	320	103	89			14	2991	3.80
30942	420	103	92.5			11	3988	3.87
30943	520	103	94.7			9	5046	3.91
30944	620	103	96.2			7	6159	3.94
30945	720	103	97.0			6	6980	3.96
30946	820	103	97.8			6	8054	3.98
30947	20	85	80			5	*	3.27
30948	P20	68	64			4	*	2.61

k = a - b

* = CLOSER BRICK

D = DIAMETER WITH 1.7mm JOINT



ARCH BRICKS (OUTSIDE TAPER 103 mm ¹/₃)

CODE NO :	MARK	DIMENSIONS in mm						VOL. dm ³
		a	b	h	l	k	D	
30954	222	103	80	220	198	23	2003	3.99
30955	322	103	88			15	3071	4.16
30956	422	103	91.5			15	4006	4.24
30957	522	103	94			9	5119	4.29
30958	622	103	95.5			8	6142	4.32
30959	722	103	96.5			7	7087	4.35
30960	822	103	97.3			6	8082	4.36
30961	22	85	80			5	*	3.59
30962	P22	68	64	250	198	4	*	2.87
30968	225	103	77			26	2013	4.46
30969	325	103	86			18	3079	4.68
30970	425	103	90			13	4027	4.78
30971	525	103	92.7			13	5083	4.84
30972	625	103	94.5			9	6159	4.89
30973	725	103	95.5			8	6980	4.91
30974	825	103	96.5			7	8054	4.94
30975	25	85	80			5	*	4.08
30976	P25	68	64			4	*	3.27

k = a · b

* = CLOSER BRICK

D = DIAMETER WITH 1.7mm JOINT

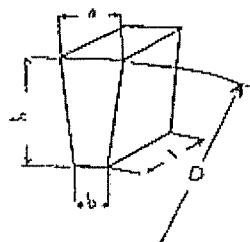


$k = n \cdot h$
 * = CLOSER BRICK
 D = DIAMETER WITH 17mm JOINT

10

ROTARY KILN ARCH BRICKS - VDZ SHAPES

37 - 39



ARCH BRICKS (MEDIAN TAPER 71.5 mm)

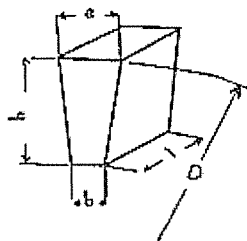
CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	D	
31001	B216	78	65	160	198	13	1957	2.27
31002	B416	75	68			7	3497	2.27
31003	B16	85	80			5	*	2.61
31004	BP16	68	64			4	*	2.09
31010	B218	78	65	180	198	13	2201	2.55
31011	B318	76.5	66.5			11	2808	2.55
31012	B418	75	68			7	3934	2.55
31013	B518	74.5	68.5			6	4560	2.55
31014	B618	74	69			5	5436	2.55
31015	B18	85	80			5	*	2.94
31016	BP18	68	64			4	*	2.35
31022	B220	78	65	200	198	13	2446	2.83
31023	B320	76.5	66.5			10	3120	2.83
31024	B420	75	68			7	4271	2.83
31025	B520	74.5	68.5			6	5067	2.83
31026	B620	74	69			5	6040	2.83
31027	B820	77	73.1			4	8072	2.97

k = a - b

* = CLOSER BRICK

D = DIAMETER WITH 1.7mm JOINT

ARCH BRICKS (MEDIAN TAPER 71.5 mm)



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	k	D	
31028	B20	85	80	200	198	5	*	3.27
31029	BP20	68	64			4	*	2.61
31035	B222	78	65			13	2691	3.11
31036	B322	76.5	66.5			10	3432	3.11
31037	B422	75	68	220	198	7	4809	3.11
31038	B522	74.5	68.5			6	5573	3.11
31039	B622	74	69			5	6644	3.11
31040	B22	85	80			5	*	3.59
31041	BP22	68	64	250	198	4	*	2.87
31047	B225	77	59.8			18	2288	3.39
31048	B325	78	65			13	3058	3.54
31049	B425	76.5	66.5			10	3900	3.54
31050	B525	75	68	250	198	7	5464	3.54
31051	B625	74.5	68.5			6	6334	3.54
31052	B725	74	69			5	7550	3.54
31053	B825	77	72.1			5	8030	3.69
31054	B25	85	80			5	*	4.08
31055	BP25	68	64			4	*	3.27

$k = a - b$

* = CLOSER BRICK

D = DIAMETER WITH 1.5mm JOINT

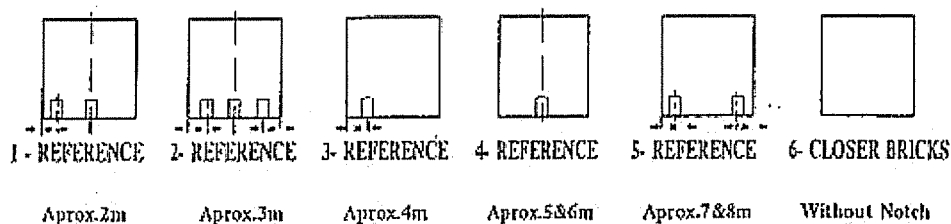
11

MARKING OF ROTARY KILN BRICKS

40 - 41

MARKING OF ROTARY KILN ARCH BRICKS (ISO9205 - 1988)

A - Notch Markings



B - Marking By Colors

The marking shall always be applied to the inner face on the interior face of the rotary kiln (hot face)

The marks on the arch bricks are differentiated according to the diameters of the rotary kilns and are as follows:

Inside Diameter of Kiln shell (meters)	Colors of the marks on the bricks
2 m	white
3 m	lilac
4 m	yellow
5 m	brown
6 m	red
7 m	grey
8 m	green
closing bricks	blue

12

RADIAL BRICKS

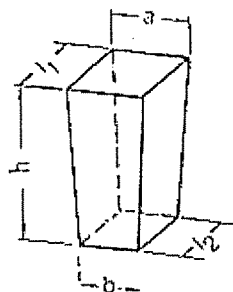
42 - 43

13

DOME BRICKS

44 - 45

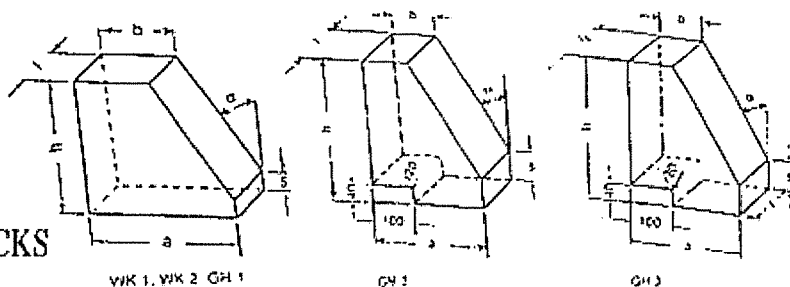
DOMES BRICKS



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l ₁	l ₂	r	
31301	R20	82.5	75	200	132	120	2000	1.99
31302	R30	80		200	128		3000	1.92
31308	R32	81		250	130		3000	2.44
31309	R42	80	75	250	128	120	4000	2.40
31310	R52	79		250	126		5000	2.37
31311	R62	78.5		250	125		6000	2.35
31312	R72	78		250	124.5		7000	2.34
31318	R43	81		300	129		4000	2.91
31319	R53	80	75	300	127	120	5000	2.87
31320	R63	79		300	126		6000	2.84
31321	R73	78		300	125		7000	2.81
31322	R93	77.5		300	124		9000	2.79

■ ■ DRAFT DIRECTOR

SKEW BRICKS

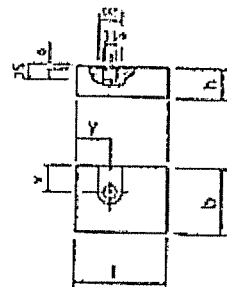


CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	b	h	l	s	a°	
31401	WK1	250	135	233	64	33	60	2.99
31402	WK2	250	50	233	64	33	45	2.46
31408	GH1	250	100	290	100	30	60	5.30
31414	FW1A	250	154	260	64	29	67	3.45
31415	FW2A	250	154	260	124	29	67	6.69
31416	FW1	250	112.5	260	64	51	56	3.24
31417	FW2	250	112.5	260	124	51	56	6.28
31423	WL230	230	115	230	114	30	60	4.72
31429	FW3A	124	70	130	250	-	22	3.15
31430	FW4A	187	133	130	250	-	22	5.20
31431	FW3	124	38	130	250	-	33	2.63
31432	FW4	187	101	130	250	-	33	4.68
31438	GH2	100	250	330	100	-	60	5.90
31439	GH3	100	250	330	100	-	60	6.72

15

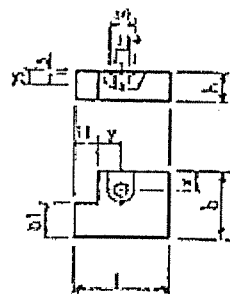
ANCHOR BRICKS

48 - 51



ANCHOR BRICKS

CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		l	b	h	x	y	φ	
31501	1FE8	230	114	64	50	57	33	1.62
31502	1FE8-76	230	114	76	50	57	33	1.93
31505	FE8	250	124	64	60	65	33	1.92
31506	FE8-76	250	124	76	60	65	33	2.29
31509	3FE8	300	150	64	60	75	33	2.82
31510	3FE8-76	300	150	76	60	75	33	3.36
31513	1BFE8	230	172	64	60	86	33	2.47
31514	1BFE8-76	230	172	76	60	86	33	2.94
31517	2BFE8	250	187	64	60	93	33	2.93
31518	2BFE8-76	250	187	76	60	93	33	3.49
31521	1DFE8	230	230	64	70	86	33	3.32
31522	1DFE8-76	230	230	76	70	86	33	3.95
31525	2DFE8	250	250	64	80	93	33	3.93
31526	2DFE8-76	250	250	76	80	93	33	4.68

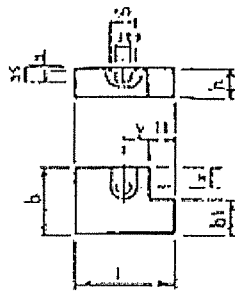


ANCHOR BRICKS

CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		l	l ₁	b	b ₁	x	y	
31529	1FE11	172	58	114	56	50	57	0.98
31530	1FE11-76	172	58	114	56	50	57	1.18
31533	FE11	187	63	124	61	60	60	1.16
31534	FE11-76	187	63	124	61	60	60	1.39
31537	3FE11	225	75	150	74	60	70	1.73
31538	3FE11-76	225	75	150	74	60	70	2.07
31541	1BFE6	230	58	172	85	60	57	2.15
31542	1BFE6-76	230	58	172	85	60	57	2.56
31545	2BFE6	250	63	187	92	60	60	2.55
31546	2BFE6-76	250	63	187	92	60	60	3.04
31549	1FE6	230	58	230	114	70	57	2.89
31550	1FE6-76	230	58	230	114	70	57	3.44
31553	FE6	250	63	250	124	80	60	3.42
31554	FE6-76	250	63	250	124	80	60	4.07

hFE = 64

hFE76 = 76



ANCHOR BRICKS

CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		l	l ₁	b	b ₁	x	y	
31557	1FE12	230	58	114	56	50	57	1.40
31558	1FE12-76	230	58	114	56	50	57	1.68
31561	FE12	250	63	124	61	60	60	1.66
31562	FE12-76	250	63	124	61	60	60	1.99
31565	3FE12	300	75	150	74	60	70	2.45
31566	3FE12-76	300	75	150	74	60	70	2.92
31569	1BFE-7	172	58	172	85	60	57	1.51
31570	1BFE7-76	172	58	172	85	60	57	1.80
31573	2BFE7	187	63	187	92	60	60	1.79
31574	2BFE7-76	187	63	187	92	60	60	2.14
31577	1FE7	172	58	230	114	70	57	2.03
31578	1FE7-76	172	58	230	114	70	57	2.41
31581	FE-7	187	63	250	124	80	60	2.41
31582	FE7-76	187	63	250	124	80	60	2.88

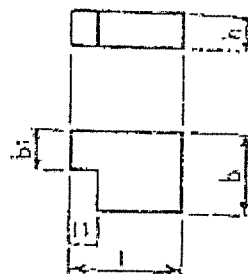
hFE = 64

hFE76 = 76

16

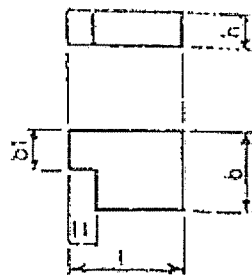
EXPANSION JOINT BRICKS

52 - 56



EXPANSION JOINT BRICKS

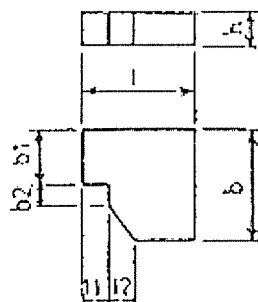
CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		l	l ₁	b	b ₁	h	b ₂	
31601	1FE10	230	58	114	56	64		1.46
31602	1FE10-76	230	58	114	56	76		1.74
31603	1FE9	172	58	114	56	64		1.04
31604	1FE9-76	172	58	114	56	76		1.23
31607	FE10	250	63	124	61	64		1.73
31608	FE10-76	250	63	124	61	76		2.05
31609	FE-9	187	63	124	61	64		1.23
31610	FE9-76	187	63	124	61	76		1.46
31613	3FE-10	300	75	150	74	64		2.52
31614	3FE10-76	300	75	150	74	76		2.99
31615	3FE9	225	75	150	74	64		1.80
31616	3FE9-76	225	75	150	74	76		2.13
31618	1BFE4	230	58	172	85	64		2.21
31619	1BFE4-76	230	58	172	85	76		2.62
31620	1BFE5	172	58	172	85	64		1.57
31621	1BFE5-76	172	58	172	85	76		1.86
31624	2BFE4	250	63	187	92	64		2.61
31625	2BFE4-76	250	63	187	92	76		3.10



EXPANSION JOINT BRICKS

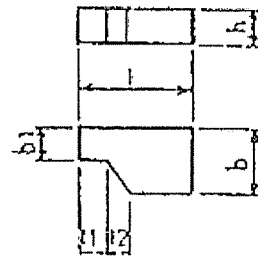
CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		l	l ₁	b	b ₁	h	b ₂	
31626	2BFE5	187	63	187	92	64		1.85
31627	2BFE5-76	187	63	187	92	76		2.20
31630	1FE4	230	58	230	114	64		2.96
31631	1FE4-76	230	58	230	114	76		3.51
31632	1FE5	172	58	230	114	64		2.10
31633	1FE5-76	172	58	230	114	76		2.50
31636	FE4	250	63	250	124	64		3.49
31637	FE4-76	250	63	250	124	76		4.15
31638	FE5	187	63	250	124	64		2.48
31639	FE5-76	187	63	250	124	76		2.95

EXPANSION JOINT BRICKS



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		l	l_1	l_2	b	b_1	b_2	
31642	1BFE4X	230	58	35	172	85	30	2.15
31643	1BFE4-76X	230	58	35	172	85	30	2.55
31644	1BFE5X	172	58	35	172	85	30	1.51
31645	1BFE5-76X	172	58	35	172	85	30	1.79
31648	2BFE4X	250	63	35	187	92	30	2.54
31649	2BFE4-76X	250	63	35	187	92	30	3.01
31650	2BFE5X	187	63	35	187	92	30	1.78
31651	2BFE5-76X	187	63	35	187	92	30	2.12
31654	1FE4X	230	58	50	230	114	40	2.83
31655	1FE4-76X	230	58	50	230	114	40	3.36
31656	1FE5X	172	58	50	230	114	40	1.99
31657	1FE5-76X	172	58	50	230	114	40	2.36
31660	FE4X	250	63	60	250	124	40	3.33
31661	FE4-76X	250	63	60	250	124	40	3.95
31662	FE5X	187	63	60	250	124	40	2.32
31663	FE5-76X	187	63	60	250	124	40	2.75

hFE = 64
hFE76 = 76



EXPANSION JOINT BRICKS

CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		l	l ₁	l ₂	b	b ₁	h	
31666	1FE-10X	230	58	35	114	56	64	1.40
31667	1FE10-76X	230	58	35	114	56	76	1.66
31668	1FE-9X	172	58	35	114	56	64	0.97
31668	1FE9-76X	172	58	35	114	56	76	1.16
31671	FE10X	250	63	40	124	61	64	1.64
31672	FE10-76X	250	63	40	124	61	76	1.95
31673	FE-9X	187	63	40	124	61	64	1.14
31674	FE9-76X	187	63	40	124	61	76	1.36
31677	3FE-10 X	300	75	45	150	74	64	2.41
31678	3FE10-76X	300	75	45	150	74	76	2.86
31679	3FE-9X	225	75	45	150	74	64	1.69
31680	3FE9-76X	225	75	45	150	74	76	2.00

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SLEEVES FOR CASTING OPERATION

57 - 58

18

STOPPERS FOR CASTING OPERATION

59 - 60



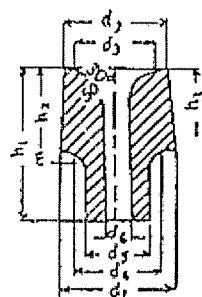
$r = \text{RADIUS}$

19

NOZZLES FOR CASTING OPERATION

61 - 64

NOZZLES



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		d_1	d_2	d_3	d_4	d_5	d_6	
31901	1A-10	155	139	115	110	100	10	2.47
31904	1A-16	155	139	115	110	100	16	2.45
31907	1A-20	155	139	115	110	100	20	2.42
31910	1A-25	155	139	115	110	100	25	2.39
31913	1A-30	155	139	115	110	100	30	2.35
31916	1A-35	155	139	115	110	100	35	2.30
31919	1A-40	155	139	115	110	100	40	2.24
31922	1A-45	155	139	115	110	100	45	2.17
31925	1A-50	155	139	115	110	100	50	2.10
31928	1A-55	155	139	115	110	100	55	2.02
31931	1A-60	155	139	115	110	100	60	1.93
31934	1A-65	155	139	115	110	100	65	1.83

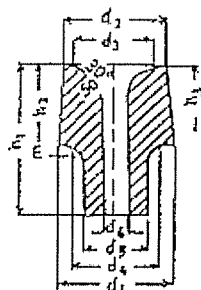
$h_1 = 210$

$h_3 = 80$

$h_2 = 100$

$m = 10$

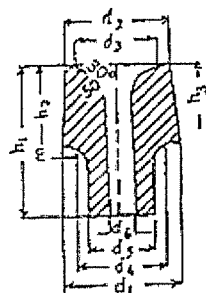
NOZZLES



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		d_1	d_2	d_3	d_4	d_5	d_6	
31937	2A-10	155	133	115	110	100	10	2.90
31940	2A-16	155	133	115	110	100	16	2.87
31943	2A-20	155	133	115	110	100	20	2.85
31946	2A-25	155	133	115	110	100	25	2.81
31949	2A-30	155	133	115	110	100	30	2.76
31952	2A-35	155	133	115	110	100	35	2.70
31955	2A-40	155	133	115	110	100	40	2.63
31958	2A-45	155	133	115	110	100	45	2.56
31961	2A-50	155	133	115	110	100	50	2.47
31964	2A-55	155	133	115	110	100	55	2.38
31967	2A-60	155	133	115	110	100	60	2.28
31970	2A-65	155	133	115	110	100	65	2.17

h1 = 240
h2 = 130

h3 = 110
m = 10



NOZZLES

CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		d_1	d_2	d_3	d_4	d_5	d_6	
31973	3A-10	180	153	135	140	120	10	4.75
31975	3A-20	180	153	135	140	120	20	4.68
31977	3A-25	180	153	135	140	120	25	4.64
31979	3A-30	180	153	135	140	120	30	4.58
31981	3A-35	180	153	135	140	120	35	4.51
31983	3A-40	180	153	135	140	120	40	4.43
31985	3A-45	180	153	135	140	120	45	4.34
31987	3A-50	180	153	135	140	120	50	4.24
31989	3A-55	180	153	135	140	120	55	4.13
31991	3A-60	180	153	135	140	120	60	4.03
31993	3A-65	180	153	135	140	120	65	3.88
31995	3A-70	180	153	135	140	120	70	3.74
31997	3A-75	180	153	135	140	120	75	3.58
31999	3A-80	180	153	135	140	120	80	3.42

$h_1 = 285$
 $h_2 = 155$

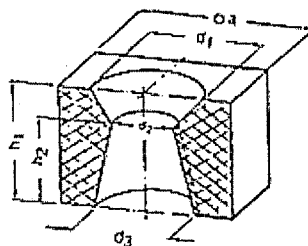
$h_3 = 135$
 $m = 20$

20

NOZZLE SEATING BLOCKS

65 - 66

NOZZLES SEATING BLOCKS



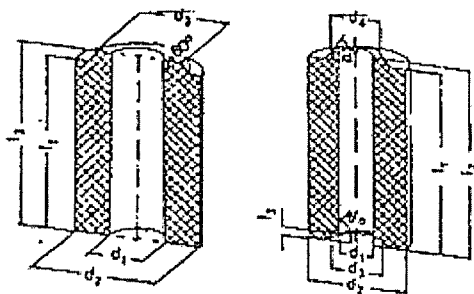
CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		a	h ₁	h ₂	d ₁	d ₂	d ₃	
32001	L0	250	107	90	125	143	220	5.01
32006	L1	320	123	100	149	169	260	9.83
32007	L2	320	165	130	143	169	260	13.26
32013	L3	360	190	155	163	194	300	19.22
32014	L4	360	222	185	157	194	300	22.71
32015	L5	360	254	185	157	194	300	25.51
32021	L6	320	123	100	123	143	260	10.45
32022	L7	320	165	130	123	149	260	13.82
32028	L8	360	190	155	130	157	300	20.69
32029	L9	360	222	185	130	163	300	24.11
32030	L10	360	254	185	130	163	300	26.87
32031	L11	360	254	185	160	193	310	24.98
32037	L12	420	254	185	210	260	320	32.36

21

TUBES FOR FOUNDRY

67 - 68

TRUMPET TUBES



CODE NO :	MARK	DIMENSIONS in mm						VOL . dm ³
		d ₁	d ₂	d ₃	d ₄	l ₂	l ₃	
32101	TR1B	65	120	88	-	340	-	2.67
32106	TR2B	80	140	106	-	340	-	3.46
32112	TR3B	90	155	120	-	340	-	4.21
32118	TR1	65	120	90	88	340	8	2.64
32124	TR2	80	140	108	106	340	8	3.42
32130	TR3	90	155	122	120	340	8	4.13
32136	TR4	100	180	134	130	340	8	5.81
32142	TR5	110	190	144	140	350	18	6.23
32148	TR6	120	200	154	150	350	18	6.64
32154	TR1K	65	120	90	88	280	8	2.16
32160	TR2K	80	140	108	106	280	8	2.80
32166	TR3K	90	155	122	120	280	8	3.38
32172	TR4K	100	180	134	130	280	8	4.76
32178	TR5K	110	190	144	140	290	18	5.09
32184	TR6K	120	200	154	150	290	18	5.43

l₁ TR1B - TR6 = 330

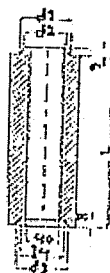
l₁ TR1K - TR6K = 270

n = 60

22

RUNNER BRICKS FOR FOUNDRY

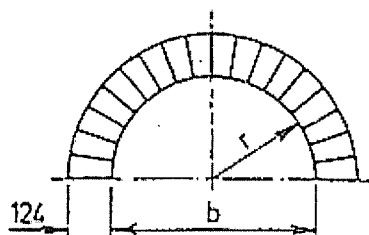
69 - 70

70

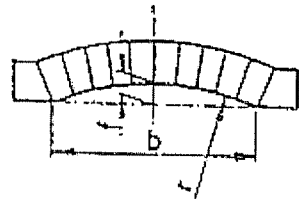
23

ROUND AND FLAT ROOFS OF STANDARD SHAPES 71 - 75

ROUND ROOFS OF SIDE ARCH BRICKS



CHANNEL WIDTH	ROOF RADIUS	NUMBER OF SIDE ARCHES IN THE ARCH					NUMBER OF END ARCHES IN THE ARCH WITH 2mm JOINT					TOTAL
		2H6	2H10	2H16	2H24	2H50	2G4	2G10	2G16	2G24	2G50	
300	150				4	6						10
400	200				9	4						13
500	250				15							15
600	300			3	14							17
700	350			10	10							20
800	400			17	5							22
900	450			25								25
1000	500		6	21								27
1100	550		13	16								29
1200	600		19	13								32
1300	650		26	8								34
1400	700		32	4								36



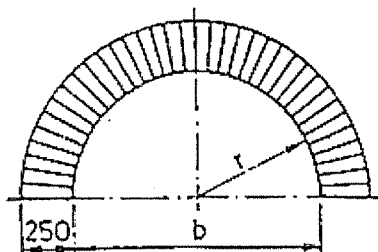
FLAT ROOFS OF SIDE ARCH BRICKS

CHANNEL WIDTH	ROOF RADIUS	NUMBER OF SIDE ARCHES IN THE ARCH					NUMBER OF END ARCHES IN THE ARCH WITH 2mm JOINT					TOTAL
		2H6	2H10	2H16	2H24	2H50	2G4	2G10	2G16	2G24	2G50	
100	130				1	2						3
200	260				4							4
300	390			4	2							6
400	520		2	5								7
500	650		7	2								9
600	780		10	-								10
700	910	4	8									12
800	1040	9	5									14
900	1170	12	3									15
1000	1300	17	-									17

$$f = 0.1 b$$

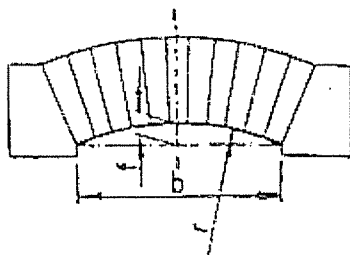
$$r = 1.3 b$$

ROUND ROOFS OF END ARCH BRICKS



CHANNEL WIDTH	ROOF RADIUS	NUMBER OF SIDE ARCHES IN THE ARCH					NUMBER OF END ARCHES IN THE ARCH WITH 2mm JOINT					TOTAL
		2116	2110	2116	2114	21150	264	2610	2616	2614	2610	
800	400									18	7	25
1000	500									27	3	30
1200	600								6	29		35
1400	700								20	20		40
1600	800								34	10		44
1800	900								49	-		49
2000	1000							12	42			54
2500	1250							44	22			66
3000	1500							78				78
3500	1750						18	71				89
4000	2000						38	63				101
4500	2250						58	55				113

FLAT ROOFS OF END ARCH BRICKS



CHANNEL WIDTH	ROOF RADIUS	NUMBER OF SIDE ARCHES IN THE ARCH					NUMBER OF END ARCHES IN THE ARCH WITH 3mm JOINT					TOTAL
		2116	2110	2116	2124	2150	204	2010	2016	2024	2030	
300	390									4	2	6
400	520									8	-	8
500	650								3	6		9
600	780								7	4		11
800	1040							4	10			14
1000	1300							13	4			17
1200	1560							20				20
1400	1820						5	18				23
1600	2080						11	16				27
1800	2340						16	14				30
2000	2600						22	11				33
2500	3250						35	6				41
3000	3900						49					79

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SEGER CONE TABLE

76 - 80

SEGER CONE TABLE

DIN 511063

SEGER CONE	150° C/h			20° C/h	
	BIG SEGER	SMALL SEGER	DESCRIPTION ISO	BIG SEGER	SMALL SEGER
SK	C°	C°	C°	C°	C°
022	595	605	-	580	585
021	640	650	-	620	625
020	660	675	-	635	640
019	685	695	-	655	665
018	705	715	-	675	680
017	730	735	-	695	695
016	755	760	-	720	720
015a	780	785	-	740	750
014a	805	815	-	780	790
013a	835	845	-	840	860
012a	860	890	-	860	880
011a	900	900	-	880	890
010a	920	925	-	900	910
09a	935	940	-	920	930
08a	955	965	-	930	940
07a	970	975	-	950	955

SEGER CONE TABLE

DIN 511063

SEGER CONE	150° C/h		DESCRIPTION ISO	20° C/h	
	BIG SEGER	SMALL SEGER		BIG SEGER	SMALL SEGER
SK	C°	C°	C°	C°	C°
06a	990	995	-	970	980
05a	1000	1010	-	990	1010
04a	1025	1055	-	1015	1035
03a	1055	1070	-	1040	1055
02a	1085	1100	-	1070	1090
01a	1105	1125	-	1090	1105
1a	1125	1145	-	1105	1120
2a	1150	1165	-	1125	1135
3a	1170	1185	-	1140	1150
4a	1195	1220	-	1160	1170
5a	1215	1230	-	1175	1185
6a	1240	1260	-	1195	1210
7	1260	1270	-	1215	1230
8	1280	1295	-	1240	1255
9	1300	1315	-	1255	1270
10	1320	1330	-	1280	1290

SEGER CONE TABLE

DIN 511063

SEGER CONE	150° C/h			20° C/h	
	BIG SEGER	SMALL SEGER	DESCRIPTION ISO	BIG SEGER	SMALL SEGER
SK	C°	C°	C°	C°	C°
11	1340	1350	-	1300	1315
12	1360	1375	-	1330	1340
13	1380	1395	-	1360	1375
14	1400	1410	-	1380	1395
15	1425	1440	-	1400	1420
16	1445	1470	-	1425	1445
17	1480	1500	150	1445	1465
18	1500	1520	152	1470	1480
19	1515	1540	154	1495	1505
20	1530	1560	156	1515	1530
23	1540	-	-	-	-
26	1560	1580	158	-	-
27	1595	1600	160	-	-
27 1/2	-	1620	162	-	-
28	1605	1640	164	-	-
29	1635	1660	166	-	-

SEGER CONE TABLE

DIN 511063

SEGER CONE	150° C/h		20° C/h		
	BIG SEGER	SMALL SEGER	DESCRIPTION ISO	BIG SEGER	SMALL SEGER
SK	C°	C°	C°	C°	C°
30	1655	1680	168	-	-
31	1680	1700	170	-	-
32	1695	-	-	-	-
32 1/2	-	1720	172	-	-
33	1710	-	-	-	-
33 1/2	-	1740	174	-	-
34	1725	1760	176	-	-
35	1765	1780	178	-	-
36	1790	1800	180	-	-
37	1815	1830	183	-	-
38	1840	1860	186	-	-
39	-	1880	188	-	-
40	-	1900	190	-	-
41	-	1940	194	-	-
42	-	1980	198	-	-

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CONVERSION OF INCHES TO MILLIMETERS

81 - 82

CONVERSION OF INCHES TO MILLIMETERS

in	mm	in	mm	in	mm	in	mm
1/16	1.59	1 1/16	27.0	2 1/8	54.0	4 1/2	114
1/8	3.18	1 1/8	28.6	2 1/4	57.2	5	127
3/16	4.76	1 3/16	30.2	2 3/8	60.3	5 1/2	140
1/4	6.35	1 1/4	31.8	2 1/2	63.5	6	152
5/16	7.94	1 5/16	33.3	2 5/8	66.7	6 1/2	165
3/8	9.52	1 3/8	34.9	2 3/4	69.8	7	178
7/16	11.1	1 7/16	36.5	2 7/8	73.0	7 1/2	190
1/2	12.7	1 1/2	38.1	3	76.2	8	203
9/16	14.3	1 9/16	39.7	3 1/8	79.4	8 1/2	216
5/8	15.9	1 5/8	41.3	3 1/4	82.6	9	229
11/16	17.5	1 11/16	42.9	3 3/8	86.7	9 1/2	241
3/4	19.0	1 3/4	44.6	3 1/2	88.9	10	254
13/16	20.6	1 13/16	46.0	3 5/8	92.1	10 1/2	266
7/8	22.2	1 7/8	47.6	3 3/4	95.2	11	279
15/16	23.8	1 15/16	49.2	3 7/8	98.4	11 1/2	292
1	25.4	2	50.8	4	102	12	305

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PERIODIC TABLE AND ATOMIC WEIGHTS

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PERIODIC TABLE AND ATOMIC WEIGHTS

GROUP

IA	IIA	IIIB	IVB	VB	VIB	VII	VIII	VIIIB	VIIIB	IB	IIB	IIIA	IVA	VA	VIA	VIIA	VIIIA
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1 H 1.008																	2 He 4.003
3 Li 6.939	4 Be 9.012											5 B 10.811	6 C 12.011	7 N 14.007	8 O 15.999	9 F 18.998	10 Ne 20.183
11 Na 22.990	12 Mg 24.312											13 Al 26.982	14 Si 28.086	15 P 30.974	16 S 32.064	17 Cl 35.453	18 Ar 39.948
19 K 39.102	20 Ca 40.078	21 Sc 44.956	22 Ti 47.88	23 V 50.942	24 Cr 51.996	25 Mn 54.938	26 Fe 55.847	27 Co 58.933	28 Ni 58.69	29 Cu 63.54	30 Zn 65.37	31 Ga 69.72	32 Ge 72.59	33 As 74.922	34 Se 78.96	35 Br 79.904	36 Kr 83.80
37 Rb 85.47	38 Sr 87.62	39 Y 88.906	40 Zr 91.22	41 Nb 92.906	42 Mo 95.94	43 Tc 98	44 Ru 101.07	45 Rh 102.97	46 Pd 106.42	47 Ag 107.87	48 Cd 112.40	49 In 114.82	50 Sn 118.69	51 Sb 121.75	52 Te 127.60	53 I 126.905	54 Xe 131.29
55 Cs 132.91	56 Ba 137.34	57 La 138.91	58 Ce 140.12	59 Pr 140.91	60 Nd 144.24	61 Pm 145	62 Sm 150.36	63 Eu 151.96	64 Gd 157.25	65 Tb 158.93	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.05	71 Lu 174.967	
87 Fr 223	88 Ra 226	89 Ac 227	104 (Unq) 261	105 (Unp) 262													

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51 Ce 140.12	52 Pr 140.91	53 Nd 144.24	54 Pm 145	55 Sm 150.36	56 Eu 151.96	57 Gd 157.25	58 Tb 158.93	59 Dy 162.50	60 Ho 164.93	61 Er 167.26	62 Tm 168.93	63 Yb 173.05	64 Lu 174.967
90 Th 232.04	91 Pa 231	92 U 238.03	93 Np 237	94 Pu 244	95 Am 243	96 Cm 247	97 Bk 247	98 Cf 251	99 Es 252	100 Fm 257	101 Md 258	102 No 259	103 Lr 262

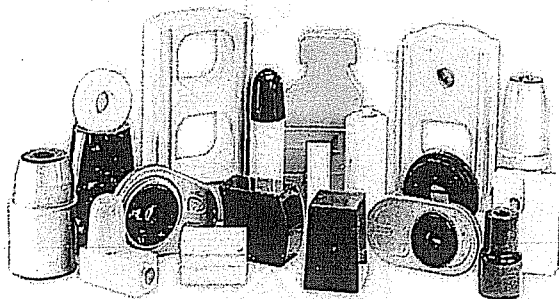
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