

Refractories for rotary kilns





Created in 2009, Trasteel Group has become one of the leading players in the steel industry

Trasteel Group was founded in 2009 as the result of the vision of a group of entrepreneurs and professionals with 40 years of international experience in the steel industry.

Today, Trasteel is a trading and industrial Group active in the steel, energy and metallurgical sectors. Headquartered in Lugano, it has over 900 employees operating in four trading desks and various industrial plants in Europe, Middle East and Asia-Pacific.

Leveraging on the combined experience, the mission of the Group is to provide better, deeper and more flexible services to the whole supply chain.

Since the high quality of the supplied materials is not enough to meet the evermore sophisticated needs of the market, Trasteel Group keeps expanding its horizons by maintaining high dynamism and diversification.

Sustainability and innovation are priorities and key aspects for the Group to focus on. Long-term targets are not an easy challenge to face, but Trasteel is committed to broaden its ESG policies.

+150

products supplied

+1.000

specialists worldwide
and growing



DISCOVER MORE
ABOUT OUR ESG VISION

Trasteel network



+50

markets covered

+4.000

customers



DISCOVER MORE ABOUT
THE STEEL MARKET

● **Headquarters**

Switzerland, Luxembourg

● **Trading Offices**

Lugano, Dusseldorf, Dubai, Shanghai, Bayuquan, Buenos Aires, Istanbul, Goma, Singapore, New York, France, Spain, Finland

● **Industrial Premises**

San Giorgio di Nogaro, Massa, Racconigi, Sesto Al Reghena, Cavallerleone, Lombardore (Italy), Nova Pazova (Serbia), Bayuquan (China), Izmir (Turkey)

● **Markets Covered**

EU, United Kingdom, Turkey, Israel, Serbia, Ukraine, Kazakhstan, Uzbekistan, Azerbaijan, U.A.E., Saudi Arabia, Oman, Brazil, Chile, Colombia, Argentina, Perù, Bolivia, Mexico, USA, Canada, Japan, South Korea, China, Malaysia, Indonesia, Philippines, Vietnam, Thailand, Taiwan, Australia, South Africa, Congo (DRC), Egypt, India, Algeria, Morocco, Tunisia, Pakistan, Norway

The Activity

The Group operates not only in the market of refractories for the steel industry, but it also developed dedicated product lines for the non-ferrous, cement and lime industries. Trasteel sources its prime grade refractories from a small number of selected suppliers in China, with whom it has a long-lasting partnership. Trasteel continuously invests in the development of its suppliers, both from financial and technical standpoint. A resident team of quality engineers, coordinated by the central office, assures the quality of the products shipped worldwide. Moreover, dedicated development functions are responsible for the continuous product innovation.

Trasteel can supply basic and non-basic bricks, mortars and unshaped materials for various applications in the cement and lime industry. Technical service and installation supervision complement the refractory offer. Based on the analysis of the kiln operating conditions and of the refractory behaviors, Trasteel's expert engineers can propose tailor-made solutions to increase the kiln performance.



Refractory lining solutions

Basic bricks

The TRAMAG series of basic brick has been developed to sustain the challenges of the modern operation methodologies of cement rotary kilns. Thanks to the availability of a wide range of prime grade raw materials, Trasteel can create several brick qualities that offer the right answer to the most demanding conditions.

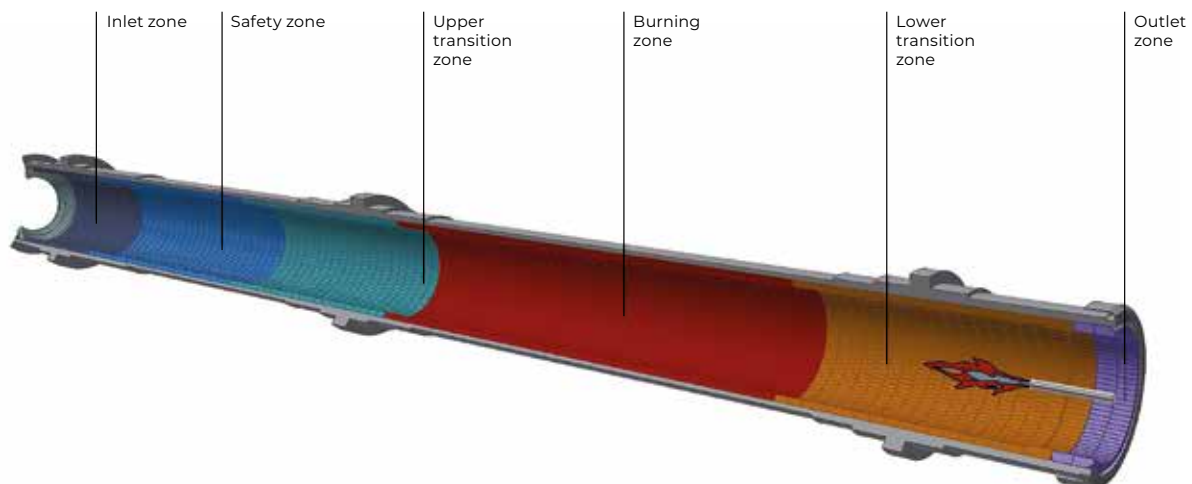
The TRAMAG SP series, developed for the use in the Upper and Lower Transition zones and demanding Burning zones, makes use of fused spinel, sintered and fused magnesia and special magnesia grades. Trasteel R&D team developed several recipes to reduce the effects of the chemical, thermal and mechanical stresses typical of these zones. Similarly, the TRAMAG HE series is suitable for the Burning zones. The use of high grade hercynite raw materials offers the best solution for a coating friendly brick, thus providing higher protection to the bricks.

Alumina-Silica bricks

Thanks to its several sources of silico-alumina raw materials, Trasteel has the possibility to offer the full range of alumina-silica bricks. The ALTRA series includes bricks with alumina content ranging from 30% to 85%. Fired and chemically bonded bricks, SiC added bricks, makes the ALTRA series suitable for application in highly alkali safety zones and inlet zones or for specific application outside the kiln area.

Mortars

Both basic and non-basic mortars complement the brick offer, both to assist the installation or for mortared linings.



Data sheets

Selection of grades for different applications: the tables below report typical, not guaranteed values.

	TRAMAG SP400	TRAMAG SP600	TRAMAG SP1000	TRAMAG HE400	TRAMAG HE600
Raw material	Magnesia- Spinel	Magnesia- Spinel	Magnesia- Spinel	Magnesia- Hercynite	Magnesia- Hercynite
Application	Standard UTZ, LTZ, BZ	High demand UTZ, LTZ	Special applications	Standard BZ	High demand BZ

CHEMICAL ANALYSIS [% MASS]

MgO	84-86	85-88	74-78	88-92	89-92
Al ₂ O ₃	10-12	10-12	16-18	3-5	3-5
Fe ₂ O ₃	Approx. 0.7	Approx. 0.5	Approx. 0.8	3-5	3-5
CaO	Approx. 1.3	Approx. 1.2	Approx. 1.2	Approx. 1.4	Approx. 1.3
SiO ₂	Approx. 0.6	Approx. 0.5	Approx. 0.6	Approx. 0.6	Approx. 0.4

PHYSICAL PROPERTIES

BD [g/cm ³]	2.90-3.00	2.95-3.05	2.95-3.05	2.95-3.05	2.95-3.10
AP [%]	17	16	16	17	17
CCS [MPa]	65	70	60	60	65

	ALTRA87	ALTRA75	ALTRA60S	ALTRA40	ALTRA30
Raw material	Special Bauxite	Bauxite	Andalusite with SiC	Fireclay	Special Fireclay
Application	OZ, SZ	IZ, SZ Kiln hood	High alkali SZ	IZ	High alkali SZ

CHEMICAL ANALYSIS [% MASS]

Al ₂ O ₃	84-87	73-77	60-63	38-42	30-34
SiO ₂	9-11	21-27	30-35	51-54	63-67
Fe ₂ O ₃	Approx. 1.4	Approx. 1.7	Approx. 1.5	Approx. 1.6	Approx. 1.6
SiC	-	-	13-15	-	-

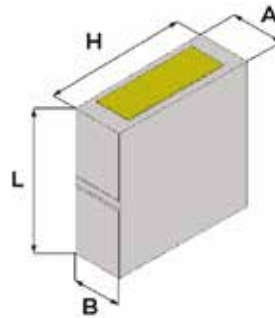
PHYSICAL PROPERTIES

BD [g/cm ³]	2.85-3.00	2.55-2.70	2.95-3.05	2.25-2.35	2.20-2.30
AP [%]	17	22	15	17	16
CCS [MPa]	100	75	90	60	55

The table does not represent all the available products. More qualities can be produced according to Customer requirements.

VDZ international series

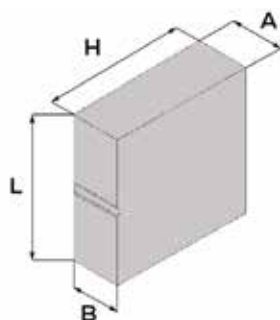
Constant median dimension 71.5 mm



SIZE DESIGNATION	DIMENSIONS (MM)				D	VOLUME (DM³)	PACKING (PCS/PLT)
	A	B	H	L			
B 218	78.0	65.0	180	198	2150	2.55	192
B 318	76.5	66.5	180	198	2750	2.55	192
B 418	75.0	68.0	180	198	3850	2.55	192
B 618	74.0	69.0	180	198	5350	2.55	192
BP 18	64.0	59.0	180	198	-	2.19	96
BP +18	83.0	77.0	180	198	-	2.85	96
B 220	78.0	65.0	200	198	2400	2.83	160
B 320	76.5	66.5	200	198	3050	2.83	160
B 420	75.0	68.0	200	198	4300	2.83	160
B 620	74.0	69.0	200	198	5900	2.83	160
B 820	73.3	69.7	200	198	8150	2.83	160
BP 20	64.0	59.0	200	198	-	2.44	80
BP +20	83.0	76.2	200	198	-	3.15	80
B 222	78.0	65.0	220	198	2650	3.11	160
B 322	76.5	66.5	220	198	3350	3.11	160
B 422	75.0	68.0	220	198	4700	3.11	160
B 622	74.0	69.0	220	198	6500	3.11	160
B 822	73.5	69.5	220	198	8100	3.11	160
BP 22	64.0	59.0	220	198	-	2.68	80
BP +22	83.0	75.5	220	198	-	3.45	80
B 325	78.0	65.0	250	198	3000	3.54	128
B 425	76.5	66.5	250	198	3850	3.54	128
B 625	74.5	68.5	250	198	6200	3.54	128
B 825	73.5	69.5	250	198	8690	3.54	128
BP 25	64.0	59.0	250	198	-	3.04	64
BP +25	83.0	74.5	250	198	-	3.90	64

ISO international series

Constant back face dimension of 103 mm



SIZE DESIGNATION	DIMENSIONS (MM)				D	VOLUME (DM³)	PACKING (PCS/PLT)
	A	B	H	L			
218	103	84.0	180	198	1950	3.33	144
318	103	90.5	180	198	2950	3.45	144
418	103	93.5	180	198	3900	3.50	144
618	103	97.0	180	198	6200	3.56	144
P 18	83	77.0	180	198	-	2.85	96
P +18	93	87.0	180	198	-	3.21	96
220	103	82.0	200	198	1950	3.66	120
320	103	89.0	200	198	2950	3.80	120
420	103	92.5	200	198	3900	3.87	120
620	103	96.2	200	198	6050	3.94	120
820	103	97.8	200	198	7900	3.98	120
P 20	83	76.2	200	198	-	3.15	80
P +20	93	86.2	200	198	-	3.55	80
222	103	80.0	220	198	2000	3.99	120
322	103	88.0	220	198	3000	4.16	120
422	103	91.5	220	198	3900	4.24	120
622	103	95.5	220	198	6050	4.32	120
822	103	97.3	220	198	7950	4.36	120
P 22	83	75.5	220	198	-	3.45	80
P +22	93	85.5	220	198	-	3.89	80
325	103	85.5	250	198	3000	4.67	96
425	103	90.0	250	198	3950	4.78	96
625	103	94.5	250	198	6050	4.89	96
825	103	96.5	250	198	7900	4.94	96
P 25	83	74.5	250	198	-	3.90	64
P +25	93	84.5	250	198	-	4.39	64

VDZ Shapes

SHAPES DIAMETER	B318:	B220:	B320:	B420:	B222:	B322:	B422:	B422:	B425:	B425:
	B618	B620	B620	B620	B622	B622	B622	B822	B625	B825
3200	94:39	75:57			91:40					
3200	95:36	76:54			92:37					
3300	89:48	72:64			88:47					
3300	91:44	73:61			89:44					
3400	84:57	69:72	111:30		86:54					
3400	87:53	71:68	113:26		87:51					
3500	80:66	66:79	106:39		83:61					
3500	82:62	68:75	108:35		84:58					
3600	76:74	64:85	102:47		80:69	128:21				
3600	78:70	65:82	104:43		81:65	130:17				
3700	72:83	61:93	98:56		77:76	124:29				
3700	74:79	62:90	100:52		79:72	126:25				
3800	67:92	58:100	93:65		74:83	119:38				
3800	69:88	60:96	95:61		76:79	121:34				
3900	63:100	56:107	89:74		72:90	115:47			152:8	
3900	65:96	57:103	91:69		73:86	117:42			156:3	
4000	58:110	53:114	84:83		69:97	110:56			146:9	
4000	61:105	54:111	87:78		71:93	113:51			149:14	
4100	54:118	50:121	80:91		66:104	106:64			139:30	149:20
4100	56:114	51:118	82:87		68:100	108:60			143:25	151:16
4200	50:127	47:129	76:100		64:111	102:73			133:41	146:28
4200	52:122	49:124	78:95		65:107	104:68			136:35	148:24
4300	45:136	44:136	71:109		61:118	97:82			126:52	143:35
4300	48:131	46:132	74:104		62:115	100:77			130:46	145:31
4400	41:144	42:143	67:118		58:126	93:91			119:63	140:42
4400	43:140	43:139	69:113		60:121	95:86			123:57	142:38
4500	36:154	39:150	62:127	156:33	55:133	88:100			113:74	138:50
4500	39:148	40:146	65:121	162:24	57:128	91:94			117:68	139:45
4600	32:162	36:157	58:135	145:48	52:140	84:108			106:85	135:57
4600	35:157	38:153	61:130	152:39	54:136	87:103			110:79	136:53
4700	28:171	34:164	54:144	134:64	50:147	80:117			100:96	132:64
4700	30:166	35:160	56:139	141:54	51:143	82:112			104:90	133:60
4800		31:171	49:153	123:79	47:154	75:126			93:107	129:72
4800		32:167	52:147	130:69	49:149	78:120			97:100	131:67
4900		28:179	45:162	112:95	44:162	71:135			86:118	126:79
4900		30:174	48:156	119:85	46:157	74:129			91:111	128:74
5000		25:186	40:171	101:110	42:168	66:144	166:44		80:129	123:86
5000		27:181	43:165	108:100	43:164	69:138	174:34		84:122	125:81
5100		22:193	36:179	90:125	39:175	62:152	155:59	175:40	73:140	120:94
5100		24:188	39:173	97:115	40:171	65:146	163:49	179:33	78:133	122:89
5200		20:200	32:188	79:141	36:183	58:161	144:75	169:50	67:151	117:101
5200		22:195	35:182	87:130	38:178	61:155	152:64	173:43	71:144	119:96
5300			27:197	68:156	33:190	53:170	133:90	163:60	60:162	114:108
5300			30:191	76:145	35:185	56:164	141:79	167:53	65:155	116:103
5400			23:205	57:171	31:197	49:179	122:106	157:71	53:173	111:116
5400			26:199	65:160	32:192	52:172	130:94	162:63	58:165	113:110
5500				46:187	28:204	44:188	111:121	152:81	47:184	108:123
5500				54:176	30:199	48:181	119:110	156:73	52:176	110:118
5600				35:202	25:211	40:196	100:136	146:91	40:195	105:130
5600				43:191	27:206	43:190	109:125	150:83	45:187	107:125
5700				24:218	22:219	36:205	89:152	140:101	34:206	102:138
5700				32:206	24:213	39:198	98:140	144:94	39:198	105:132
5800					19:226	31:214	78:167	134:112	27:217	99:145
5800					22:220	35:207	87:155	139:104	32:209	102:139
5900						27:223	67:183	128:122	21:228	96:152
5900						30:216	76:170	133:114	26:220	99:146
6000						23:231	56:198	122:132	14:239	94:159
6000						26:224	65:186	127:124	19:230	96:154
6100							45:213	116:142	7:250	91:167
6100							54:201	121:134	13:241	93:161
6200							34:229	111:153	1:261	88:174
6200							44:216	115:144	6:252	90:168
6300							23:244	105:163		85:181
6300							33:231	110:154		87:175

● without joint ○ with 1 mm joint ● Framed fonts indicate optimum mixing ratio

ISO Shapes

SHAPES DIAMETER	318: 618	220: 620	320: 620	420: 620	222: 622	322: 622	422: 622	422: 822	322: 822	425: 825
3200		42:56			42:56				89:9	
3200		42:55			43:54				90:7	
3300	81:20	40:61	80:21		41:60	84:17			87:14	
3300	20:18	41:59	81:19		41:59	85:15			88:12	
3400	78:26	39:65	77:27		39:65	81:23			85:19	
3400	79:24	39:64	78:25		40:63	82:21			86:17	
3500	76:31	37:70	74:33		38:69	78:29			83:24	
3500	77:29	38:68	75:31		38:68	79:27			84:22	
3600	73:37	36:74	71:39		36:74	75:35			82:29	
3600	74:35	37:72	72:37		37:72	76:33			82:27	
3700	70:43	35:78	68:45		35:78	72:41			80:34	
3700	71:41	35:77	69:43		35:77	73:39			80:32	
3800	67:49	33:83	65:51		33:83	68:48			78:39	
3800	68:47	34:81	66:49		34:81	70:45			78:37	
3900	64:55	32:87	62:57		32:87	65:54			76:43	
3900	65:53	32:86	63:55		32:86	67:51			77:42	
4000	61:61	30:92	59:63		30:92	62:60			74:48	
4000	63:58	31:90	60:61		31:90	64:57			75:46	
4100	59:66	29:96	56:69		29:97	59:66			72:53	117:9
4100	60:64	29:95	58:66		29:95	61:63			73:51	118:6
4200	56:72	27:101	53:75	104:24	27:101	56:72	106:23		70:58	114:15
4200	57:70	29:99	55:72	107:20	28:99	57:70	108:19		71:56	115:12
4300	53:78	26:105	51:80	99:33	26:106	53:78	100:32	109:22	68:63	111:21
4300	54:76	26:104	52:78	101:29	27:104	54:76	102:28	111:19	69:61	112:18
4400	50:84	24:110	48:86	93:41	24:110	50:84	94:40	106:28	67:68	108:27
4400	51:82	25:108	49:84	96:38	25:108	51:82	96:37	108:25	67:66	109:24
4500	47:90	23:114	45:92	88:50	23:115	47:90	88:49	103:34	65:73	105:33
4500	49:87	23:113	46:90	90:46	24:113	48:88	91:45	105:31	66:71	106:30
4600	44:96	21:119	42:98	82:59	21:119	44:96	83:58	100:40	63:78	102:39
4600	46:93	22:117	43:96	84:55	22:117	45:94	85:54	102:37	64:76	103:36
4700	41:102	20:123	39:104	76:67	20:124	41:102	77:66	97:46	61:83	99:45
4700	43:99	21:121	40:102	79:63	21:121	42:100	79:63	99:43	62:81	100:42
4800	39:107		36:110	71:76	19:128	38:108	71:75	94:52	59:88	95:51
4800	40:105		38:107	73:72	19:126	39:106	74:71	96:49	60:85	97:49
4900	36:113		33:116	65:85	17:133	35:114	65:84	91:58	57:93	92:57
4900	37:111		35:113	68:81	18:131	36:112	68:80	93:55	58:90	94:55
5000	33:120		31:122	60:93	16:137	32:121	60:93	89:64	55:98	89:64
5000	35:116		32:119	62:89	16:135	33:118	62:89	90:61	56:95	91:61
5100	31:125		28:128	54:102		29:127	54:102	86:70	53:102	86:70
5100	32:122		29:125	57:98		30:124	57:97	87:67	54:100	88:67
5200	28:131		25:134	48:111		26:133	48:111	83:76	52:107	83:76
5200	29:128		26:131	51:106		27:130	51:106	84:73	53:105	85:73
5300	25:137		22:140	43:119		23:139	43:119	80:82	50:112	80:82
5300	26:134		23:137	46:115		24:136	45:115	81:79	51:110	82:79
5400			19:146	37:128		20:145	34:128	77:88	48:117	77:88
5400			20:143	40:123		21:142	40:123	78:85	49:115	79:85
5500				32:137			31:137	74:94	46:122	74:94
5500				34:132			34:132	75:91	47:120	76:91
5600				26:145			25:146	71:100	44:127	71:100
5600				29:141			28:141	72:97	45:124	73:97
5700				20:154			20:154	68:106	42:132	68:106
5700				23:149			23:149	69:103	43:129	70:103
5800								65:112	40:137	65:112
5800								66:109	41:134	67:109
5900								61:119	39:142	62:118
5900								63:115	40:139	64:115
6000								58:125	37:147	59:125
6000								60:125	38:144	61:121
6100								55:131	35:152	56:131
6100								57:127	36:149	58:127
6200								52:137	33:157	53:137
6200								54:133	34:154	55:133
6300								49:143	31:161	50:143
6300								51:139	32:159	52:139

● without joint ○ with 1 mm joint ● Framed fonts indicate optimum mixing ratio



Technical assistance

A team of expert engineers can offer its know-how to improve refractory performances. Detailed analysis of the refractory lining and of the process parameters can help in the choice of the proper refractory brick grades. Besides the quality of the refractory material, a proper installation is the key for the success of the refractory lining.

Trasteel can offer:

- Technical expertise
- Engineered solutions for refractories, metal parts and spare parts
- Installation supervision
- Project management capabilities
- Technical and installation trainings

Shipping and logistics

The long experience of Cosulich Group in shipping and logistics enables Trasteel to provide dedicated shipment solutions to all its clients around the world.

Thanks to important collaborations and partnerships forged over the decades, both Cosulich and Trasteel have evolved into a dynamic force able to link continents, fostering innovation and covering the entire shipping and logistics value chain.

Moreover, the presence of strategically located warehouses contributes to Trasteel's ability to significantly shorten delivery times by offering dedicated on-demand solutions.



NOTE

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