



QINGDAO WESTERN COAST ADVANCED MATERIALS CO.,LTD.

Qingdao Western Coast Advanced Materials Co.,Ltd.

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ISO9001:2008
QUALITY MANAGEMENT SYSTEM



Qingdao Western Coast Advanced Materials Co., Ltd. (WAM) established in 2007 and located in the beautiful coastal city Qingdao, is a leading manufacturer of wide range of mullite insulating bricks worldwide.

With special technology and experienced production method, WAM provides:

1. High quality Insulating Bricks, including WAM-23,WAM-26,WAM-28,WAM-30,WAM-32,B-5,B-6,B-7,C-1,C-2,C-3.
2. Insulating Castables.
3. Insulating Mortar WAM-2300, WAM-2600, WAM-2800, WAM-3000.
4. Insulating Grogs.

WAM insulating products are widely applied in middle and high temperature furnaces in the field of Metallurgy, Aluminum, Petrochemical, Ceramics, Power and Glass industry, etc. The production is strictly manufactured according to ASTM , JIS and DIN standard, that was certified by ISO9001:2008 quality management system. The production capacity is 5,000,000 pieces of standard bricks per year.

WAM has our own testing laboratory with full set of testing equipments, including Multi-Element Chemical Analyzer, Thermal Conductometer , Permanent Liner Change Experimental Furnace, Cold Crushing Strength Tester & Modulus of Rupture Tester, Flame Photometer, which are the strong assurance to the quality.

WAM has established business relations with many customers in Germany, United Kingdom, Italy, Spain, Turkey, USA, Australia, South Korea, Malaysia and Middle East, etc, where WAM insulating bricks have earned the market recognition.

Highest quality, lowest fuel consumption, low carbon, best reliability combined with easiest handling, advanced technology and a profound understanding of the problems are the ingredients for the production of insulating materials.

With the customer as our partner, WAM first defines the requirements. Based on this, and on the long years of experience, we will work out the best solution for your specific needs.



WAM Series Insulating Bricks

WAM series insulating bricks are a kind of highly efficient, energy saving, low-carbon, environmental protection advanced products which are manufactured according to ASTM standard. WAM series products are the best lining and insulation materials in all types of industrial furnaces in the field of Metallurgy, Aluminum, Petrochemical, Ceramics, Power and Glass. They can be applied as heat insulation or no-melt erosion parts of the working layer. The products have been widely used in the following furnaces and achieved satisfactory results.

Metallurgy industry: Blast furnace, Hot blast stove, Reheating furnace, etc.

Petrochemical industry: Ethylene cracking furnace, Hydrogen production furnace, Primary reformer furnace, Reheating furnace, etc.

Ceramics Industry: Roller kiln, Pusher kiln, etc.

Glass industry: Glass furnace regenerator, etc.

Carbon Industry: Carbon roaster, etc.

Aluminum electrolytic industry: aluminum reduction cells, etc.

Other industries: Tunnel kiln, Shuttle kiln, etc.

Advantages

Low Thermal Conductivity: More porosity brings excellent insulation effect, energy saving.

High Crushing Strength: High crushing strength under thermal state, volume stability.

Low Heat Storage: Little thermal storage when absorb more heat, energy saving effect is obvious.

High Purity: Low content of iron, alkaline and metal impurities.

Accurate Dimension: Precise brick size by machining, cutting and grinding special shapes, expediting bricklaying.

Physical properties and Chemical analysis of WAM Insulating Bricks

		WAM-23L	WAM-23	WAM-23HS	WAM-23CA	WAM-25	WAM-25HS	WAM-26	WAM-26HS	WAM-28	WAM-30	WAM-32
Classification Temperature	°C	1260	1260	1260	1260	1370	1350	1430	1430	1540	1650	1760
	°F	2300	2300	2300	2300	2500	2500	2600	2600	2800	3000	3200
Bulk Density	g/cm ³	0.50	0.60	0.67	0.50	0.80	1.10	0.80	0.90	0.90	1.03	1.25
	lb/ft ³	31	37	42	31	50	69	50	56	56	64	78
Cold Crushing Strength	Mpa	1.0	1.2	2.1	1.0	2.0	6.0	2.0	4.0	2.6	2.8	3.4
	lb/in ²	145	170	305	145	284	870	284	580	370	398	484
Modulus of Rupture	Mpa	0.7	0.9	1.3	0.6	1.2	3.1	1.5	2.5	1.6	1.7	2.0
	lb/in ²	101	128	189	101	170	450	218	362	232	247	290
Permanent Liner Change	%	0	0	-0.2	-0.2	-0.3	-0.3	-0.5	-0.5	-0.8	-0.9	-0.9
	°C x 24hrs	1230	1230	1230	1230	1350	1350	1400	1400	1510	1620	1730
Thermal Conductivity	400°C	0.15	0.17	0.21	0.12	0.24	0.32	0.24	0.29	0.30	0.40	0.49
	600°C	0.17	0.19	0.25	0.14	0.28	0.36	0.27	0.32	0.32	0.42	0.50
	800°C	0.19	0.22	0.30	0.17	0.32	0.40	0.30	0.35	0.35	0.44	0.51
	1000°C	0.22	0.25	0.35	0.19	0.37	0.45	0.32	0.38	0.38	0.45	0.53
	1200°C	--	--	--	--	--	--	0.35	0.41	0.39	0.47	0.55
Chemical Analysis												
Al ₂ O ₃	%	45	45	45	37	50	50	55	55	65	72	76
Fe ₂ O ₃	%	1.0	1.0	1.0	0.7	1.0	1.0	0.9	0.9	0.7	0.6	0.4
SiO ₂	%	50	50	50	44	45	45	42	42	32	26	22
CaO	%	--	--	--	15	--	--	--	--	--	--	--
K ₂ O+Na ₂ O	%	1.1	1.1	1.1	0.8	1.1	1.1	1.0	1.0	0.8	0.2	0.1

The above datas are subject to normal manufacturing variations and change without notice. Results should not be used for specification purpose.

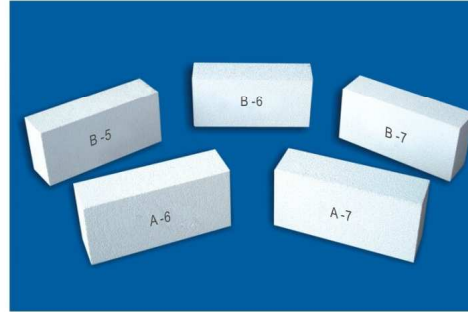


WAM A B C Series Insulating Bricks

WAM Series Insulating Mortars and Groggs



According to JIS industry standard, we produce WAM A,B,C series insulating bricks, mainly supply to East Asia and Southeast Asia. WAM bricks have low iron content, low thermal conductivity, low thermal capacity, low impurities, low linear change and excellent characteristics for erosion resistance atmosphere, also have high strength, good thermal shock resistance, advanced features of dimensional accuracy. The products are widely used in industrial Annealing furnace, Carbonization furnace, Tempering furnace, Cracking furnace, Roller kiln, Tunnel kiln, etc.



	WAM A-Series						
	A-1	A-2	A-3	A-4	A-5	A-6	A-7
Temp. (°C) Reheating Shrinkage less than 2%	900	1000	1100	1200	1300	1400	1500
Bulk Density g/cm ³	0.50	0.50	0.50	0.55	0.60	0.70	0.75
Cold Crushing Strength kg/cm ²	5	5	5	8	8	10	10
Thermal Conductivity at 350°C (W/m.k)	0.13	0.14	0.15	0.16	0.17	0.20	0.22

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	WAM B-Series						
	B-1	B-2	B-3	B-4	B-5	B-6	B-7
Temp. (°C) Reheating Shrinkage less than 2%	900	1000	1100	1200	1300	1400	1500
Bulk Density g/cm ³	0.70	0.70	0.75	0.80	0.80	0.90	1.00
Cold Crushing Strength kg/cm ²	25	25	25	25	25	30	30
Thermal Conductivity at 350°C (W/m.k)	0.17	0.18	0.20	0.22	0.23	0.27	0.31

The above datas are subject to normal manufacturing variations and change without notice. Results should not be used for specification purpose.



	WAM C-Series		
	C-1	C-2	C-3
Temp. (°C) Reheating Shrinkage less than 2%	1300	1400	1500
Bulk Density g/cm ³	1.10	1.20	1.25
Cold Crushing Strength kg/cm ²	50	70	100
Thermal Conductivity at 350°C (W/m.k)	0.30	0.38	0.45

The above datas are subject to normal manufacturing variations and change without notice. Results should not be used for specification purpose.

	Safety Application Temp.	Bulk Density	Cold Crushing Strength	Permanent Linear Change	Thermal Conductivity	Al ₂ O ₃
	°C	g/cm ³	Mpa	%	(350+25°C) W/m.k	%
WAM-1200G	1200	0.6	1.2	-0.5 (1200°Cx8h)	0.2	45
WAM-1350G	1350	0.8	2.4	-0.8 (1350°Cx8h)	0.3	50
WAM-1450G	1450	1.0	2.6	-1.0 (1450°Cx8h)	0.4	55

The above datas are subject to normal manufacturing variations and change without notice. Results should not be used for specification purpose.

	WAM-2300	WAM-2600	WAM-2800	WAM-3000
Classification Temperature °C	1260	1430	1550	1650
Bulk Density g/cm ³	1.8	1.9	2.0	2.1
Modulus of Rupture (110°Cx24h) Mpa	10	12	16	20
Permanent Linear Change %	-2.8	-2.6	-2.4	-2.3
Al ₂ O ₃ %	40	45	50	55
Fe ₂ O ₃ %	1.2	1.0	0.8	0.6
Consumption for Insulating Bricks kg/1000Pcs	180	200	200	200
Applications	WAM-23	WAM-23 WAM-26	WAM-28	WAM-30
WAM series mortars for insulating bricks are normally supplied as ready-to-use wet blends of finely ground aggregates and special binders.				

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			WAM-T80	WAM-T100	WAM-T120	WAM-150
Safety Application Temp		°C	800	1000	1200	1400
Al ₂ O ₃		%	26	28	35	48
Bulk Density	g/cm ³	110°Cx3hrs	0.5	0.7	1.0	1.6
		800°Cx3hrs	0.48	0.67	0.9	1.52
Crushing Strength	Mpa	110°Cx24hrs	0.7	1.5	5.0	29
		815°Cx3hrs	--	--	3.5	18
		800°Cx3hrs	0.6	1.0	3.5	24
		900°Cx3hrs	--	--	1.5	4
Modulus of Rupture	Mpa	110°Cx 24hrs	--	0.6	2.5	6
		815°Cx3hrs	--	--	1.5	4
		900°Cx3hrs	--	0.5	1.2	7
		1100°Cx 3hrs	--	--	1.5	4
Linear Change	%	815°Cx3hrs	--	--	-0.4	-0.3
		800°Cx3hrs	-0.8	-0.7	-0.5	-0.4
Thermal Conductivity (350±25°C)		W/m.k	0.17	0.20	0.24	0.40
Water Addition		%	74-77	47-50	32-35	16-18
Installation			Coating ,Casting	Casting ,Casting	Casting,Gunning	Casting, Gunning

The above datas are subject to normal manufacturing variations and change without notice. Results should not be used for specification purpose.



Testing Equipments



- 1.Cold Crushing Strength Tester
- 2.E-hot-air Drying Oven
- 3.Thermal Conductometer
- 4.Experimental Console
- 5.Flame Photometer
- 6.Multielement Fast Analyzer
- 7.PLC Experimental Furnace

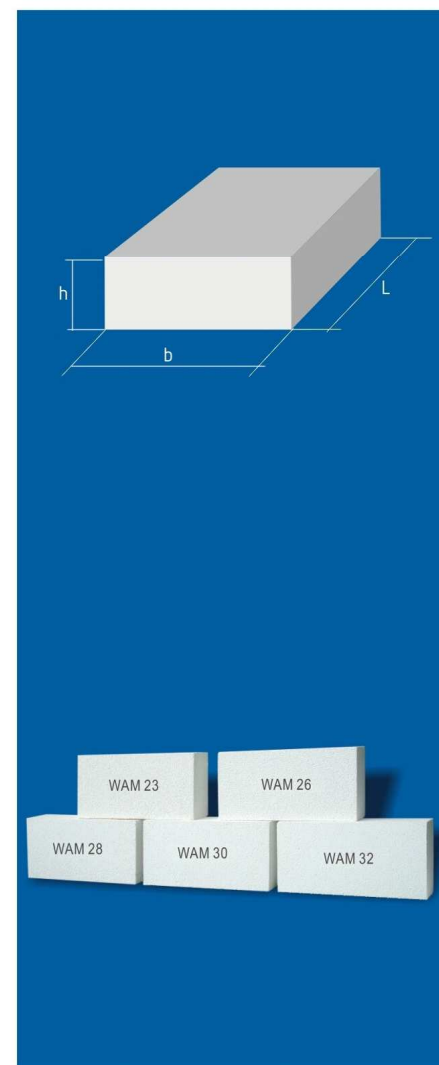


Standard Packaging:
WAM Insulating Firebricks are packed on shrink film wrapped and stabilized pallets(1160x1100x1040mm).Quantity of bricks per pallet.

A,mm	B,mm																C,mm (Thick)		
	110	114	124	150	152	165	172	178	187	220	230	250	305	320	345	457		610	640
220	740	-	-	-	-	555	-	-	-	270	-	-	-	-	-	-	-	-	60
230	668	668	586	501	501	419	419	419	419	334	334	304	252	420	222	160	120	120	64
230	560	560	490	420	420	350	350	350	350	280	280	256	210	192	180	136	104	96	76
250	608	608	532	456	456	380	380	380	380	304	304	228	228	228	168	120	90	90	64
250	512	512	448	384	384	320	320	320	320	256	256	192	192	192	135	102	78	72	76
300	504	504	441	378	378	315	315	315	315	252	252	228	189	180	168	120	90	90	64
300	408	408	357	306	306	255	255	255	255	210	210	192	153	144	135	102	78	72	76
345	444	444	390	333	333	279	279	279	279	222	222	168	168	168	111	80	60	60	64
345	360	360	315	270	270	225	225	225	225	180	180	135	135	135	90	68	52	48	76
450	336	336	294	252	252	210	210	210	210	168	168	126	126	126	84	80	60	60	64
450	320	320	280	204	240	200	200	200	200	160	160	120	120	120	80	68	52	52	76

Cardboard Packaging:
WAM Insulating Firebricks are also available in cardboard packaging on shrink film wrapped pallets on request.Quantity of bricks per carton(cartons/pallet).

A,mm	B,mm																C,mm (Thick)		
	110	114	124	150	152	165	172	178	187	220	230	250	305	320	345	457		610	640
220	25 (24)	-	-	-	-	18	-	-	-	9 (32)	-	-	-	-	-	-	-	-	60
230	25 (24)	25 (24)	20 (24)	18 (24)	18 (24)	18 (24)	18 (24)	18 (24)	15 (24)	9 (32)	9 (24)	9 (24)	9 (24)	9 (24)	9 (24)	9 (16)	-	-	64
230	20 (24)	20 (24)	16 (24)	14 (24)	14 (24)	14 (24)	14 (24)	14 (24)	12 (24)	7 (32)	7 (32)	7 (24)	7 (24)	7 (24)	7 (24)	7 (16)	-	-	76
250	18 (32)	18 (24)	18 (24)	18 (24)	48.0 (18)	18 (18)	18 (18)	18 (18)	16 (32)	9 (24)	9 (24)	9 (18)	9 (24)	9 (18)	9 (16)	-	-	-	64
250	14 (32)	14 (32)	14 (24)	14 (24)	45.0 (18)	14 (18)	14 (18)	14 (18)	14 (32)	7 (32)	7 (24)	7 (24)	7 (18)	7 (24)	7 (16)	-	-	-	76
300	25 (18)	25 (18)	18 (24)	18 (18)	18 (18)	18 (18)	18 (18)	18 (18)	16 (24)	9 (24)	9 (24)	9 (18)	9 (18)	9 (24)	9 (16)	-	-	-	64
300	20 (18)	20 (18)	14 (24)	14 (18)	14 (18)	14 (18)	14 (18)	14 (18)	14 (24)	7 (24)	7 (24)	7 (24)	7 (18)	7 (18)	7 (24)	7 (16)	-	-	76
345	18 (24)	18 (24)	18 (18)	18 (18)	18 (18)	9 (32)	9 (32)	9 (32)	9 (32)	9 (24)	9 (24)	9 (18)	9 (18)	9 (18)	9 (12)	9 (12)	-	-	64
345	14 (24)	14 (24)	14 (18)	14 (18)	14 (18)	7 (32)	7 (32)	7 (32)	7 (24)	7 (24)	7 (18)	7 (18)	7 (18)	7 (12)	7 (12)	-	-	-	76
450	25 (12)	25 (12)	18 (16)	18 (12)	18 (12)	18 (12)	18 (12)	18 (12)	16 (16)	9 (16)	9 (16)	9 (16)	9 (12)	9 (12)	9 (12)	9 (8)	-	-	64
450	20 (12)	20 (12)	14 (16)	14 (12)	14 (12)	14 (12)	14 (12)	14 (12)	14 (16)	7 (16)	7 (16)	7 (16)	7 (12)	7 (12)	7 (12)	7 (8)	-	-	76



Dimensions mm				
Type	L	b	h	Volume dm ³
NF1	230	114	64	1.68
NF1/10	230	114	10	0.26
NF1/20	230	114	20	0.52
NF1/28	230	114	28	0.73
NF1/30	230	114	30	0.79
NF1/32	230	114	32	0.84
NF1/38	230	114	38	1.00
NF1/40	230	114	40	1.05
NF1/50	230	114	50	1.31
NF1/63	230	114	63	1.65
NF1/65	230	114	65	1.70
NF1/76	230	114	76	1.99
NF1/100	230	114	100	2.62
NF2	250	124	64	1.98
NF2/30	250	124	30	0.93
NF2/32	250	124	32	0.99
NF2/40	250	124	40	1.24
NF2/50	250	124	50	1.55
NF2/65	250	124	65	2.02
NF2/76	250	124	76	2.36
NF2/100	250	124	100	3.10
NF3	300	150	64	2.88
NF3/30	300	150	30	1.35
NF3/32	300	150	32	1.44
NF3/40	300	150	40	1.80
NF3/50	300	150	50	2.25
NF3/65	300	150	65	2.93
NF3/76	300	150	76	3.42
NF3/80	300	150	80	3.60
NF4/50	250	250	50	3.13
NF4/64	250	250	64	4.00
FN	220	110	60	1.45

Mortars

Availability and Packaging:
WAM Mortars are delivered ready-to-use, in metal drums and are packed on shrink film wrapped pallets(950x950x1100mm).Quantity of drums per pallet.

Standard packaging	WAM-2600	WAM-3000	WAM-3200
Metal drums of 40kg	27 (810kg)	27 (810kg)	27 (810kg)