



**SIGMA CRUCIBLES**  
PRODUCT CATALOGUE

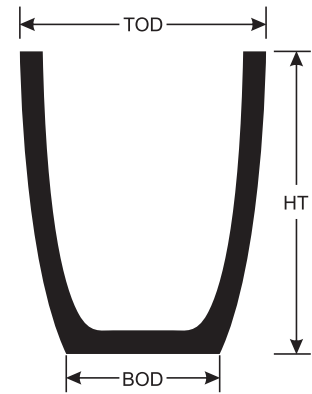
**MORGANITE CRUCIBLE (INDIA) LTD.**

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**Contact:**

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## Red Diamond “Sigma” Al Shape (Small Crucibles)



TYPE SIZE	PART DESCRIPTION	HT MM	TOD MM	BOD MM	BRIMFUL CAPACITY WATER LITRES
Al 0.5	AX0074H0080	80	74	50	0.16
Al 1	AX0092H0095	95	92	65	0.28
Al 1.4	AX0094H0110	110	94	54	0.26
Al 2	AX0110H0120	120	110	75	0.55
Al 3	AX 0120H0135	135	120	80	0.74
Al 3.1	AX0110H0130	130	110	70	0.53
Al 4	AX0140H0155	155	140	100	1.26
Al 4.1	AX0115H0140	140	115	75	0.66
Al 4.2	AX0115H0141	141	115	75	0.60
Al 5	AX0140H0165	165	140	100	1.37
Al 5.1	AX0125H0150	150	125	85	0.86
Al 5.2	AX0127H0155	155	127	87	0.94
Al 6	AX0140H0172	175	140	100	1.48
Al 6.1	AX0106H0165	165	106	90	0.99
Al 6.2	AX0130H0165	165	130	90	1.16
Al 8	AX0155H0180	180	155	105	1.78
Al 10	AX0175H0200	200	175	120	2.37
Al 10.1	AX0162H0205	205	162	115	1.87
Al 12	AX0175H0210	210	175	120	2.5
Al 14	AX0175H0225	225	175	120	2.8
Al 15	AX0200H0200	200	200	120	3.3
Al 16	AX0200H0230	230	200	120	3.9
Al 16L	AX0215H0235	235	215	130	4.1
Al 18	AX0215H0250	250	215	130	4.4
Al 18L	AX0220H0260	260	220	140	4.9
Al 20	AX0230H0265	265	230	140	5.4
Al 25	AX0230H0280	280	230	140	5.9
Al 30	AX0255H0280	280	255	165	7.5
Al 32	AX0245H0340	340	245	175	7.8

### Note

Crucible Working capacity = 90% of (Water liter Capacity x Specific gravity of the metal)

### • Specific gravity of various metals are as below:

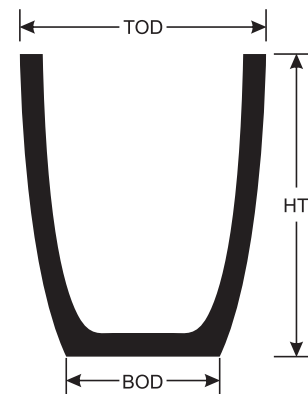
Brass = 8.35      Gold = 19.3      Zinc = 7.12  
Copper = 8.9      Silver = 10.5      Iron = 7.85

All dimensions are subject to normal manufacturing tolerances. Morgan reserves the right to change specifications at any time

## Red Diamond “Sigma” AI Shape (Small Crucibles)

TYPE SIZE	PART DESCRIPTION	HT MM	TOD MM	BOD MM	BRIMFUL CAPACITY WATER LITRES
AI 32(S)	AX 0245H0325	325	245	175	7.5
AI 34	AX0245H0360	360	245	175	8.3
AI 35	AX0268H0300	300	268	185	8.6
AI 40	AX0268H0315	315	268	185	9.2
AI 41	AX0268H0330	330	268	185	9.5
AI 42	AX0270H0355	355	270	185	10.5
AI 50	AX0305H0330	330	305	195	10.6
AI 50TW	AX0288H0340	340	288	195	12.1
AI 55	AX0305H0350	350	305	195	11.6
AI 60	AX0307H0375	375	307	195	12.1
AI 70	AX0325H0385	385	325	210	14.5
AI 80	AX0325H0410	410	325	210	15.8

## Red Diamond “Sigma” AI Shape (Big Iso-Static Crucibles)



TYPE SIZE	PART DESCRIPTION	HT MM	TOD MM	BOD MM	BRIMFUL CAPACITY WATER LITRES
AI 85	AX0325H0430	430	325	210	16.5
AI 86	AX0330H0410	410	330	227	18.1
AI 90	AX0350H0404	404	350	240	20.6
AI 100	AX0350H0410	410	350	240	21.0
AI 110	AX0350H0420	420	350	240	21.8
AI 120	AX0350H0435	435	350	240	23.0
AL 120 L	AX0350H0450	450	350	245	20.6
AI 125	AX0380H0420	420	380	240	24.0

### Note

Crucible Working capacity = 90% of (Water liter Capacity x Specific gravity of the metal)

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Copper = 8.9      Silver = 10.5      Iron = 7.85

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## Red Diamond “Sigma” AI Shape (Big Iso-Static Crucibles)

TYPE SIZE	PART DESCRIPTION	HT MM	TOD MM	BOD MM	BRIMFUL CAPACITY WATER LITRES
AI 135	AX0380H0450	450	380	240	25.2
AI 150	AX0380H0475	475	380	240	26.6
AI 151	AX0380H0485	485	380	240	27.2
AI 180	AX0380H0500	500	380	240	28.5
AI 180 L	AX0380H0522	522	380	240	33.9
AI 185	AX0430H0500	500	430	260	33.8
AI 185 L	AX0429H0500	500	429	280	34.4
AI 195	AX0410H0500	500	410	295	35.6
AI 197	AX0410H0527	527	410	295	38.2
AI 200	AX0430H0540	540	430	260	37.6
AI 200 L	AX0435H0540	540	430	280	38.2
AI 225	AX0430H0565	565	430	260	40.0
AI 225 L	AX0435H0565	565	435	280	40.7
AI 250	AX0430H0590	590	430	260	42.4
AI 250 L	AX0435H0590	590	435	280	43.2
AI 255	AX0440H0545	545	440	295	48.4
AI 260	AX0430H0610	610	430	260	44.3
AI 260 L	AX0436H0610	610	436	280	45.2
AI 280	AX0430H0635	635	430	260	47.6
AI 280 L	AX0436H0635	635	436	280	47.0
AI 300	AX0475H0585	585	475	320	55.0
AI 305	AX0440H0540	540	440	315	44.6
AI 307	AX0440H0590	590	440	315	51.0
AI 324	AX0480H0500	500	480	280	45.0
AI 325	AX0475H0600	600	475	320	56.7
AI 326	AX0490H0600	600	490	280	59.2
AI 350	AX0475H0640	640	475	320	61.7
AI 351	AX0490H0640	640	490	280	64.3
AI 351.2	AX0490H0670	670	490	280	68.5
AI 352	AX0490H0710	710	490	280	74.3
AI 355	AX0560H0600	600	560	360	75.8
AI 355L	AX0560H0600	600	560	390	77.0
AI 400	AX0564H0660	660	564	360	86.6
AI 400L	AX0563H0660	660	564	390	84.6
AI 401	AX0540H0660	660	540	315	78.4
AI 400.I	AX0564H0715	690	564	360	92.9
AI 402	AX 0515H0620	620	515	360	72.8

### Note

Crucible Working capacity = 90% of (Water liter Capacity x Specific gravity of the metal)

#### • Specific gravity of various metals are as below:

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Copper = 8.9      Silver = 10.5      Iron = 7.85

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## Red Diamond “Sigma” AI Shape (Big Iso-Static Crucibles)

TYPE SIZE	PART DESCRIPTION	HT MM	TOD MM	BOD MM	BRIMFUL CAPACITY WATER LITRES
AI 405	AX0540H0680	680	540	315	82.6
AI 405 L	AX0540H0700	700	540	315	87.0
AI 406	AX0515H0680	680	515	360	82.3
AI 450	AX0564H0705	705	564	360	95.4
AI 500	AX0564H0720	720	564	360	97.4
AI 500L	AX0567H0720	720	567	390	94.0
AI 501	AX 0545H0720	720	545	315	89.1
AI 502	AX0515H0660	660	515	360	78.8
AI 510	AX0545H0740	740	545	315	93.8
AI 525	AX0564H0740	740	564	360	101.3
AI 525L	AX0567H0740	740	567	390	96.5
AI 550	AX0564H0760	760	564	360	104.6
AI 550L	AX 0567H0760	760	567	390	99.1
AI 551	AX0545H0760	760	545	315	96.4
AI 552	AX0520H0720	720	520	360	88.1
AI 600	AX0564H0810	810	564	360	113.6
AI 600L	AX0570H0810	810	570	390	110.0
AI 601	AX0548H0810	810	548	315	104.8
AI 602	AX0520H0810	810	520	360	101.6
AI 605	AX0564H0840	840	564	360	120.2
AI 625	AX0580H0730	730	580	350	105.0
AI 2430 S	AX0678H0650	650	678	370	126.6
AI 2450 S	AX0695H0800	800	695	370	170.0
AI 2475 S	AX0700H0850	850	700	370	185.0
AI 2500 S	AX0718H01000	1000	718	370	232.0

### Note

Crucible Working capacity = 90% of (Water liter Capacity x Specific gravity of the metal)

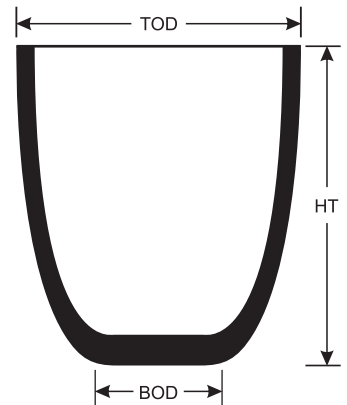
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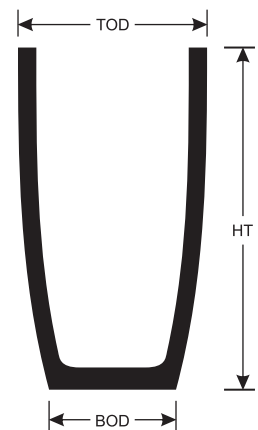
## Red Diamond “Sigma” BUI Shape

TYPE SIZE	PART DESCRIPTION	HT MM	TOD MM	BOD MM	BRIMFUL CAPACITY WATER LITRES
BUI 100	BU0523H0402	402	523	305	44.2
BUI 125	BU0524H0451	451	524	305	52.1
BUI 150	BU0525H0492	492	525	305	58.8
BUI 175	BU0526H0551	551	526	305	69.7
BUI 200	BU0527H0600	600	527	305	76.8
BUI 212	BU0590H0550	550	590	360	92.4
BUI 225	BU0590H0630	630	590	360	109.5
BUI 225L	BU0590H0655	655	590	360	111.8
BUI 250	BU0590H0660	660	590	360	115.9
BUI 250L	BU0590H0685	685	590	360	117.6
BUI 300	BU0590H0700	700	590	360	124.4
BUI 300L	BU0590H0725	725	590	360	125.6
BUI 350	BU0590H0800	800	590	360	145.9
BUI 350L	BU0590H0825	825	590	360	148.1
BUI 500	BU0775H0750	750	775	360	210.0
BUI 550	BU0775H0800	800	775	360	228.0
BUI 600	BU0775H0900	900	775	360	266.6



## Red Diamond “Sigma” TPI Shape (Without Spout)

TYPE SIZE	PART DESCRIPTION	HT MM	TOD MM	BOD MM	BRIMFUL CAPACITY WATER LITRES
TPI 4	PX0360H0613	613	360	250	32.0
TPI 5	PX0360H0707	707	360	250	38.0
TPI 6	PX0360H0807	807	360	250	44.0
TPI 8	PX0440H0820	820	440	290	72.5
TPI 9	PX0440H0880	880	440	295	79.2
TPI 10	PX0440H0940	940	440	295	85.5
TPI 904	PX0360H0914	914	360	250	50.7
TPI 905	PX0360H0920	920	360	250	51.0



### Note

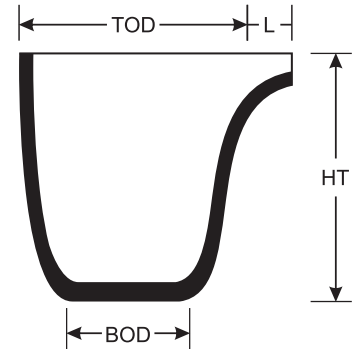
Crucible Working capacity = 90% of (Water liter Capacity x Specific gravity of the metal)

### • Specific gravity of various metals are as below:

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Copper = 8.9      Silver = 10.5      Iron = 7.85

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## Red Diamond “Sigma” TPI Shape (With Spout)



TYPE SIZE	PART DESCRIPTION	HT MM	TOD MM	BOD MM	BRIMFUL CAPACITY WATER LITRES
TPI 150	AX0485H0380 T-LAI300	485	380	240	27.6
TPI 400	PX0360H0613T-LAI300	613	360	250	32.0
TPI 600	PX0360H0807T-LAI300	807	360	250	44.0
TPI 260	AX0380H0485 T-LAI300	485	380	260	44.3
TPI 325	AX0430H0672 T-LAI300	672	430	260	50.3
TPI 326	AX0427H0672 T-LAI300	672	427	260	43.6
TPI 740	PX0440H0555T-LAI300	555	440	295	49.1
TPI 982	PX0440H0820T-LAI300	820	440	295	72.8
TPI 983	PX0440H0880T-LAI300	880	440	295	79.2
TPI 287	BU0527H0600T-LAI300	600	527	305	76.5
TPI 12	PX0440H0940T-LAI300	940	440	295	85.5
TPI 87	AX0520H0740 T-LAI300	740	520	360	90.5
TPI 88	AX0550H0810 T-LAI300	810	550	315	104.8
TPI 89	AX0564H0810 T-LAI300	810	564	360	113.6
TPI 387	BU0590H0630 T-LAI300	630	590	360	109.5
TPI 387L	BU0590H0655T-LAI300	655	590	360	109.5
TPI 412	BU0590H0800T-LAI300	800	590	360	145.9
TPI 412L	BU0590H0825T-LAI300	825	590	360	145.9
TPI 525	PX0564H0740T-LAI300	740	564	360	95.6

### Note

Crucible Working capacity = 90% of (Water liter Capacity x Specific gravity of the metal)

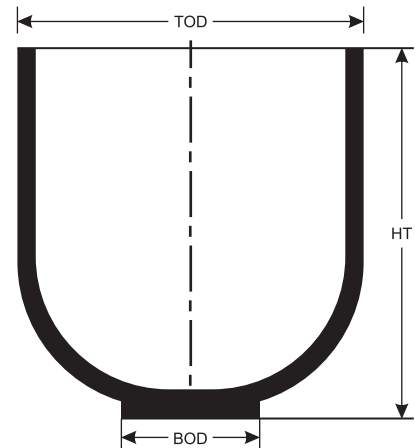
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Copper = 8.9      Silver = 10.5      Iron = 7.85

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## Red Diamond “Sigma” BNI Shape



TYPE SIZE	PART DESCRIPTION	HT MM	TOD MM	BOD MM	BRIMFUL CAPACITY WATER LITRES
BNI 202	BNI0617H0500	500	617	260	70.0
BNI 302	BNI0617H0630	630	617	260	97.0
BNI 401	BNI0617H0700	700	617	260	113.0
BNI 402	BNI0617H0800	800	617	260	135.0
BNI 350	BNI0617H0900	900	617	260	140.0
BNI 355	BNI0617H0950	950	617	260	172.0
BNI 500	BNI0785H0750	750	785	310	217.0
BNI 500L	BNI0782H0500	500	782	310	110.2
BNI 550	BNI0785H0825	825	785	310	245.0
BNI 600	BNI0785H0890	890	785	310	270.0
BNI 615	BNI0785H0905	905	785	310	276.0
BNI 700	BNI0785H1000	1000	785	310	312.0
BNI 750	BNI0785H1060	1060	785	310	333.1
TPNI 500	PX0785H0750T	750	785	310	190.0
TPNI 615	PX0785H0905T	905	785	310	253.0
TPNI 700	BU0785H1000T-LA2J146	1000	785	310	296.0
TBNI 600	BU0785H0890T-LA2J146	890	785	310	239.3

**Above sizes are also supply in :**

- Fuel fired furnaces (Suffixed with 'E' e.g. 'BNI600 E')
- Electric resistance furnace (Suffixed with 'E Plus' e.g. 'BNI600 E Plus')

**Note**

Crucible Working capacity = 90% of (Water liter Capacity x Specific gravity of the metal)

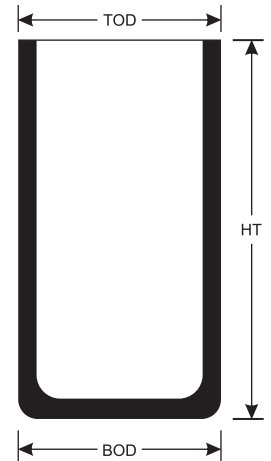
**• Specific gravity of various metals are as below:**

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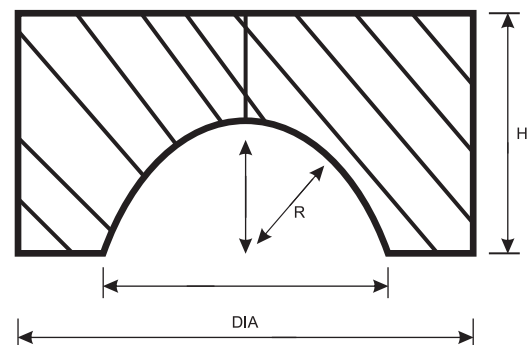
## Red Diamond “Sigma” Cylindrical Crucible For induction furnace application

TYPE SIZE	PART DESCRIPTION	HT MM	TOD MM	BOD MM	BRIMFUL CAPACITY WATER LITRES																																		
CYI 110X265	CYI0110H0265X	265	110	110	1.5																																		
CYI 222X420 A	CYI0222H0420X	420	222	222	6.8																																		
CYI 222X400	CYI0222H0400X	400	222	222	8.1																																		
CYI 400X700	CYI0400H0700X	700	400	400	61.2																																		
CYI 400X640	CYI0400H0640X	640	400	400	55.6																																		
CYI 400X600	CYI0400H0600X	600	400 </tr <tr> <td>CYI 390X632</td> <td>CYI0390H0632X</td> <td>632</td> <td>390</td> <td>390</td> <td>49.0</td> </tr> <tr> <td>CYI 504X710</td> <td>CYI0504H0710X</td> <td>710</td> <td>504</td> <td>504</td> <td>102.5</td> </tr> <tr> <td>CYI 504X750</td> <td>CYI0504H0750X</td> <td>750</td> <td>504</td> <td>504</td> <td>109.0</td> </tr> <tr> <td>CYI 504X850</td> <td>CYI0504H0850X</td> <td>850</td> <td>504</td> <td>504</td> <td>124.4</td> </tr> <tr> <td>CYI 550X820</td> <td>CYI0550H0820X</td> <td>820</td> <td>550</td> <td>550</td> <td>142.7</td> </tr> <tr> <td>CYI 550X850</td> <td>CYI0550H0850X</td> <td>850</td> <td>550</td> <td>550</td> <td>122.1</td> </tr>	CYI 390X632	CYI0390H0632X	632	390	390	49.0	CYI 504X710	CYI0504H0710X	710	504	504	102.5	CYI 504X750	CYI0504H0750X	750	504	504	109.0	CYI 504X850	CYI0504H0850X	850	504	504	124.4	CYI 550X820	CYI0550H0820X	820	550	550	142.7	CYI 550X850	CYI0550H0850X	850	550	550	122.1
CYI 390X632	CYI0390H0632X	632	390	390	49.0																																		
CYI 504X710	CYI0504H0710X	710	504	504	102.5																																		
CYI 504X750	CYI0504H0750X	750	504	504	109.0																																		
CYI 504X850	CYI0504H0850X	850	504	504	124.4																																		
CYI 550X820	CYI0550H0820X	820	550	550	142.7																																		
CYI 550X850	CYI0550H0850X	850	550	550	122.1																																		



## Red Diamond “Sigma” Stand (Cylinder Type)

TYPE SIZE	HT MM	TOD MM	BOD MM
STAND AI/1	125	250	250
STAND AI/2	150	250	250
STAND AI/3	200	250	250
STAND AI/4	250	250	250
STAND AI/5	50	250	250
STAND AI/6	75	250	250
STAND BI/1	125	300	300
STAND BI/2	150	300	300
STAND BI/3	200	300	300
STAND BI/4	250	300	300
STAND BI/5	50	300	300
STAND BI/6	75	300	300
STAND CI/1	125	360	360
STAND CI/2	150	360	360
STAND CI/3	200	360	360
STAND CI/4	250	360	360
STAND CI/5	50	360	360
STAND CI/6	75	360	360



### Note

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Copper = 8.9      Silver = 10.5      Iron = 7.85

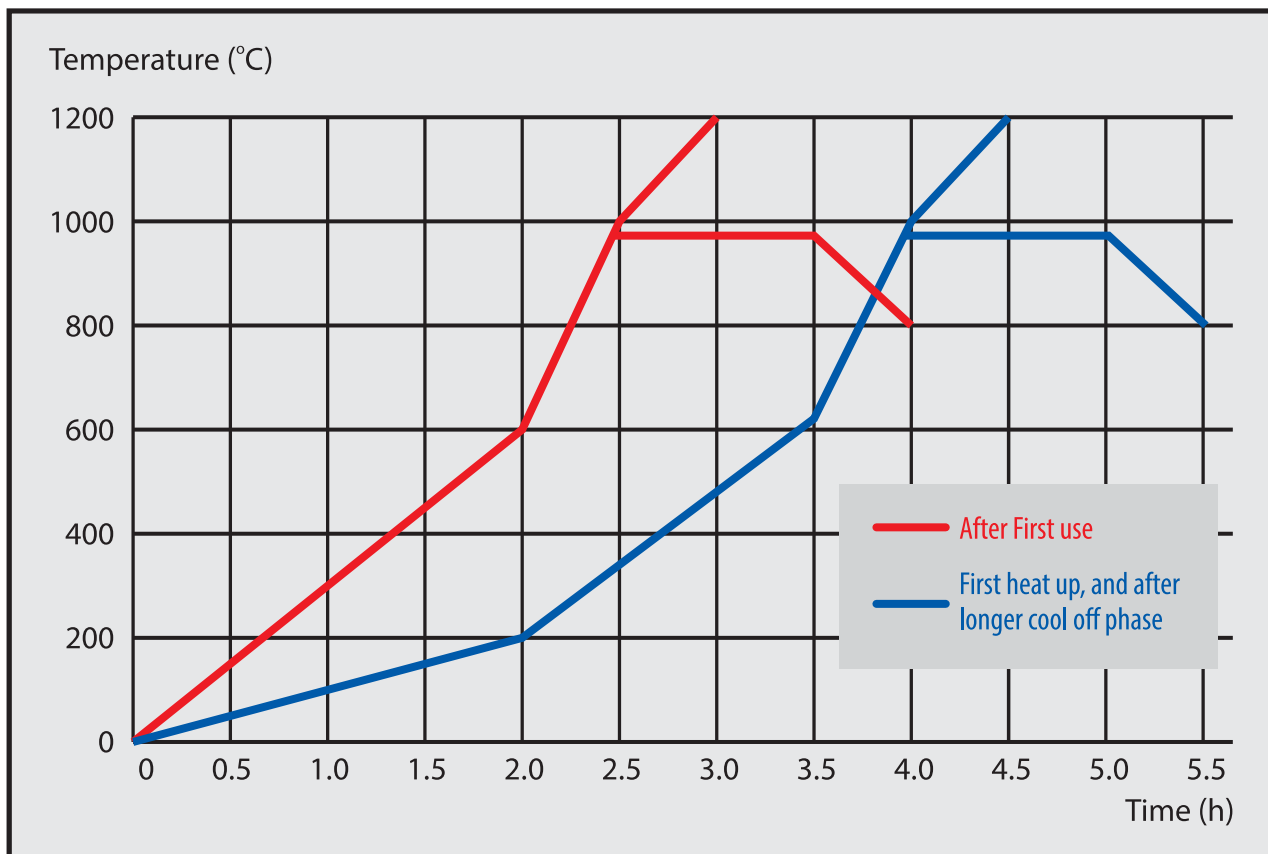
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# Preheating Recommendations

## Clay Graphite Crucibles

### Preheating cycle

- The crucible, after being installed in the furnace should be heated up slowly to a temperature of 200°C (392°F) over a period of 2 hours, to eliminate any moisture that may be present.
- Next, these crucibles should be heated up to a temperature of 600°C (1112°F) on low power, before the full heating rate is used to reach 950°C (1742°F).
- Clay Graphite crucibles used in a melting operation can be continuously heated up on full power until working temperature is reached. The crucible is then ready to be charged with care.
- When using Clay/Graphite crucibles for holding, the temperature of 950°C (1742°F) should be reached and held for approximately 1 hour. This ensures even melting of the glaze with the additional antioxidation coating, which is essential to achieve the maximum possible crucible life.



### Note

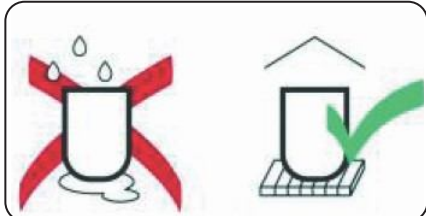
- For holding crucibles this procedure should be carried out periodically, but always before starting up again after a cool down period. This helps to compensate for the negative effects of low holding temperatures.
- Each time the crucible is heated up after a cooling down phase, it should be heated following the procedure laid down for the first installation. However, the drying time of 2 hours can be omitted. Should the Silicon Carbide or Clay Graphite crucible not be used for a long period, it will be necessary to eliminate moisture, which may have been absorbed from slag. In this case, the crucible should be heated up to a temperature of 200°C (392°F). After reaching this temperature, further heating should be continued as per the first installation.
- The above recommendations refer to the use of new crucibles in existing furnaces. When installing a new Silicon Carbide crucible into a new furnace, the heating and drying instructions of the furnace manufacturer should be followed. If the furnace manufacturer prescribes a longer heating cycle (or curve), this procedure should be carried out without the crucible. It is essential that the crucible is installed in an absolutely dry furnace.

# Crucibles

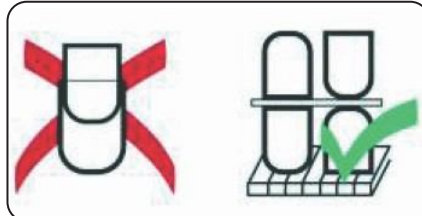
## Care & Use

### Recommendations for care and use of crucibles

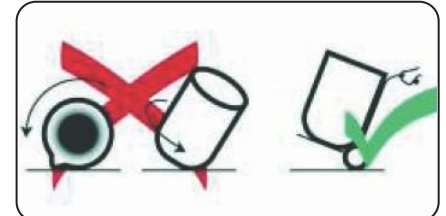
The following practices should be observed in order to achieve the maximum possible crucible life. If any further advice or information is required please contact our sales or technical staff.



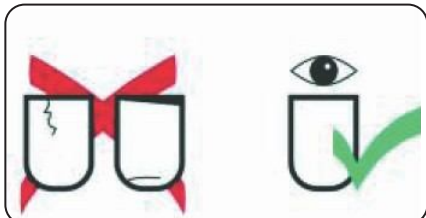
Store crucibles off the floor in a dry, warm place.



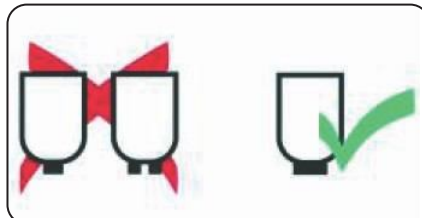
Do not nest one inside another. Separate layers with hardboard.



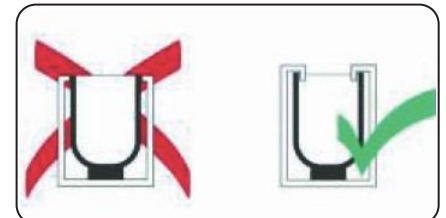
Do not roll crucibles. Move using a sack truck with padding.



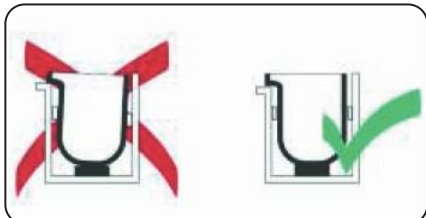
Check thoroughly for cracks or damage before use.



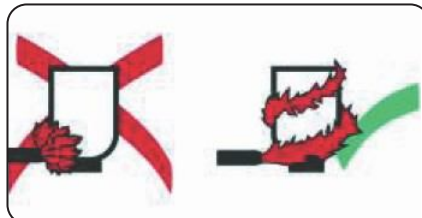
Use the correct crucible stand which must be central and support the whole base.



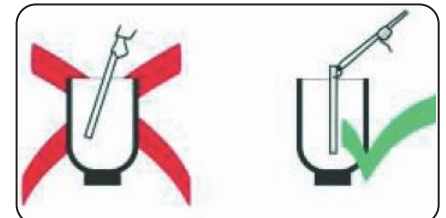
Allow space for expansion between crucible and furnace lining/cover.



Use correctly positioned grip bricks in tilting furnaces, leaving gaps for expansion. Do not hang crucible on spout.



The flame path must be tangential to the crucible.



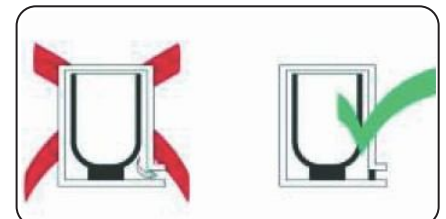
Ingots should be loaded carefully into the crucible using tongs.



First charge with light returns, as a cushion, then add ingots vertically.



Only add flux after the metal is molten.



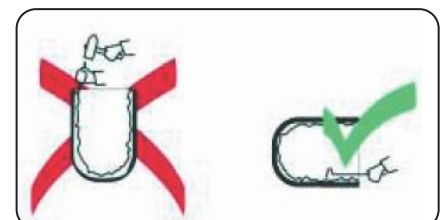
Avoid ingress of cold air by ensuring that the drain hole is sealed.



Lift-out tongs should hold crucible on its lower third and fit evenly on both sides.



The crucible must be emptied before switching off the furnace.



The crucible should be cleaned out carefully every day while still red hot.