ISO-ALUSTAR Crucibles

DESCRIPTION

ISO-ALUSTAR is a premium quality crucible manufactured by high pressure iso-static pressing and incorporating high levels of oxidation resistance and mechanical durability.

This product range is designed to provide superior resistance to attack by melt treatment agents typically used in aluminium alloy applications.

APPLICATIONS

ISO-ALUSTAR offers superior performance for aluminium holding and melting in electric resistance and gas furnaces, as well as melting and holding of zinc and zinc alloys.

TYPICAL METAL CASTING TEMPERATURE

Aluminium:	620 - 900°C (1148 - 1652°F)
Zinc:	450 - 550°C (842 - 1022°F)

PERFORMANCE CHARACTERISTICS

- Excellent resistance to attack by chemical treatment agents
- High mechanical strength
- Excellent resistance to oxidation
- High consistent density
- Fast melting speed through high thermal conductivity

IDENTIFICATION

ISO-ALUSTAR crucibles are finished green and utilise pattern coding with the suffix ALUS e.g. BN500ALUS

PATTERN RANGE

ISO-ALUSTAR crucibles are available in a range of shapes and sizes to suit most end user requirements. Certain sizes can be made available with pyrometer pocket configuration to facilitate accurate measurement of metal temperature. A selection of fixed pouring spouts with optimised profiles is offered where required for tilting furnace applications.

QUALITY

ISO-ALUSTAR crucibles are manufactured from premium grade raw materials under an ISO 9001:2000 quality management system.

PREHEATING / FIRST USE

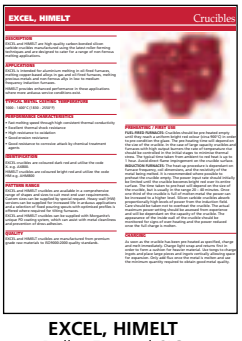
ELECTRIC RESISTANCE AND GAS FIRED FURNACES: Crucibles should be pre-heated empty. A new crucible should initially be heated slowly to 200°C over a period of two hours to eliminate any moisture that may be present. Subsequently the crucible should be heated to 600°C on low power before the full heating rate is used to reach 950°C, or the desired working temperature if higher. Iso-Alustar crucibles used for holding applications should be held at 950°C for one hour in order to fully develop the anti-oxidant glaze system. The time taken to reach temperature will depend on the size of the crucible but will typically be in the range two and a half to three hours. Avoid direct flame impingement on the crucible surface.

The same heat up procedure should be repeated prior to re-use after a cool-down period. The two hour drying period can be omitted except where the crucible has not been used for a long period in which case moisture that has been absorbed by slag will need to be slowly removed.

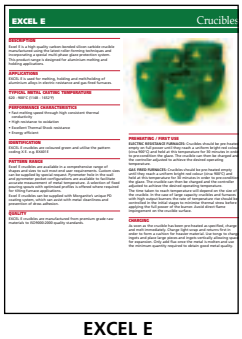
CHARGING

As soon as the crucible has been pre-heated as specified, charge and melt immediately. Charge light scrap and returns first in order to form a cushion for heavier material. Use tongs to charge ingots and place large pieces and ingots vertically allowing space for expansion. Only add flux once the metal is molten and use the minimum quantity required to obtain good metal quality.

FULL LINE OF CRUCIBLES AND ACCESSORIES TO MEET EVERY APPLICATION



EXCEL, HIMELT
Roller-Formed SIC

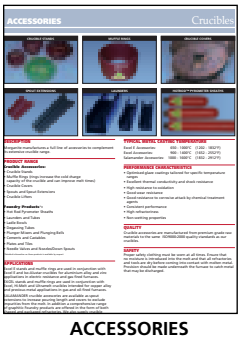


EXCEL E
Roller-Formed SIC

INDUX
Clay Graphite

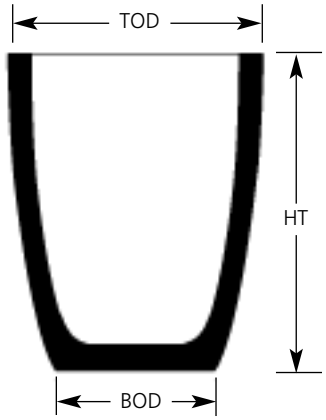
SALAMANDER SUPER
Clay Graphite

ULTRAMELT
ISO-Pressed SIC



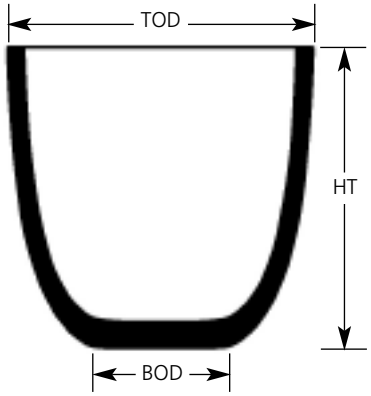
ACCESSORIES

MORGANITE CRUCIBLE LTD
Woodbury Lane, Norton Worcester, WR5 2PU, ENGLAND Tel: +44 (0) 1905 728200 • Fax: +44 (0) 1905 767877 • www.morganmms.com



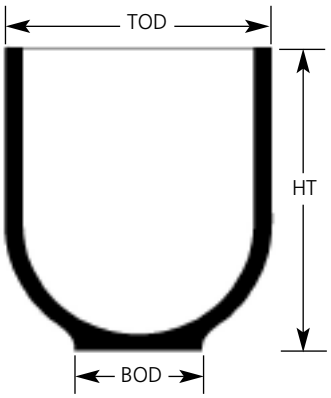
Crucibles for Lift-out and Bale-out Furnaces

ISO-ALUSTAR A-SHAPES (A_ALUS)	TOD (mm)	HT (mm)	BOD (mm)
A100ALUS	325	400	205
A150ALUS	350	450	210
A200ALUS	400	500	255
A250ALUS	420	515	225
A300ALUS	440	540	260
A350ALUS	465	590	320
A400ALUS	500	600	350
A500ALUS	510	650	350
A600ALUS	540	680	380
A800ALUS	560	800	380



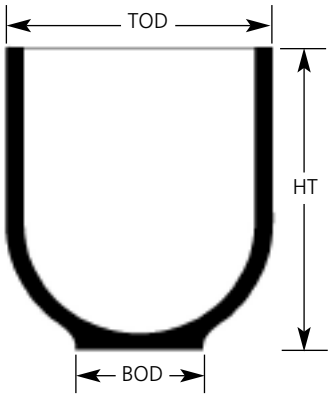
Crucibles for Bale-out Furnaces

ISO-ALUSTAR BU SHAPE (BU_ALUS)	TOD (mm)	HT (mm)	BOD (mm)
BU100ALUS	515	400	305
BU125ALUS	520	450	305
BU150ALUS	520	490	305
BU175ALUS	525	550	305
B171ALUS	527	600	305
BU210ALUS	615	500	320
BU250ALUS	615	630	320
BU300ALUS	615	700	320
BU350ALUS	615	800	320
BU360ALUS	615	900	320
BU370ALUS	615	1050	320
BU500ALUS	775	750	360
BU600ALUS	780	900	350
BU700ALUS	780	1000	350
BU1110ALUS	965	940	335
BU1210ALUS	965	1050	335
BU1310ALUS	980	1200	335
BU1510ALUS	980	1320	335
BU1800ALUS	1050	1300	540



Crucibles for Bale-out Furnaces

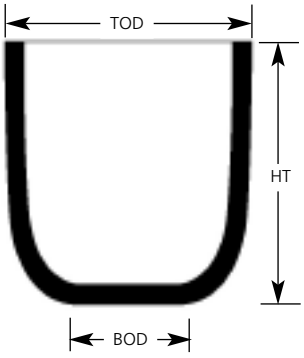
ISO-ALUSTAR BN SHAPE (BN_ALUS)	TOD (mm)	HT (mm)	BOD (mm)
BN150ALUS*	525	490	230
BN175ALUS*	525	550	230
BN200ALUS*	525	600	230
BN204ALUS*	525	700	230
BN210ALUS*	615	500	245
BN250ALUS*	615	630	245
BN300ALUS*	615	700	245
BN350ALUS*	615	800	245
BN360ALUS*	615	900	245
BN400ALUS**	715	600	305
BN410ALUS**	715	700	305
BN420ALUS**	715	800	305
BN430ALUS**	715	940	305
BN500ALUS*	775	750	312
BN600ALUS*	780	900	312
BN687ALUS*	830	900	285
BN690ALUS*	830	1000	285
BN750ALUS*	875	880	350



Crucibles for Bale-out Furnaces

ISO-ALUSTAR BN SHAPE (BN_ALUS)	TOD (mm)	HT (mm)	BOD (mm)
BN800ALUS*	880	1000	350
BN900ALUS*	880	1100	350
BN1100ALUS*	880	1170	350
BN1200ALUS*	880	1250	350
BN1500ALUS**	885	1500	350
BN1600ALUS	830	1505	285

ISO-ALUSTAR US BOWL SERIES (TBN_ALUS)	TOD (mm)	HT (mm)	BOD (mm)
30.630ALUS	700	630	305
30.720ALUS	705	660	305
30.765ALUS	705	685	305
30.810ALUS	705	735	305
30.850ALUS	710	760	305
30.900ALUS	710	800	305
31.000ALUS	715	875	305
31.100ALUS	715	940	305
41.200ALUS*	865	815	350
41.300ALUS*	875	865	350
41.400ALUS*	880	915	350
41.500ALUS*	880	965	350
41.600ALUS*	880	1015	350
41.700ALUS*	880	1065	350
41.800ALUS*	885	1115	350
41.900ALUS*	885	1165	350
42.000ALUS*	885	1215	350
42.240ALUS	885	1320	350
42.300ALUS	885	1370	350
42.400ALUS	885	1420	350
52.100ALUS**	965	940	335
52.330ALUS**	965	1015	335
52.550ALUS**	965	1090	335
52.770ALUS**	965	1170	335
53.000ALUS**	965	1245	335
53.230ALUS**	980	1320	335
60.000ALUS**	1050	1300	540

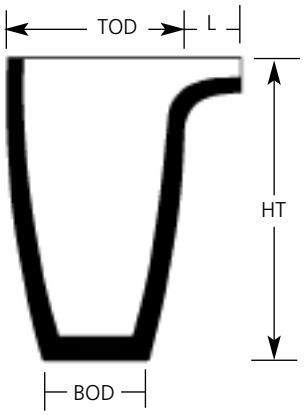


All dimensions are nominal and subject to normal manufacturing tolerances

***Available with pyrometer pocket**

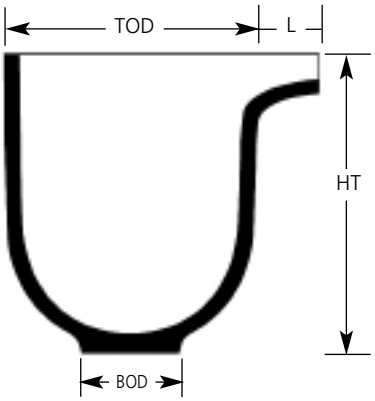
****Available with pyrometer hole in wall**

Morganite also supplies a complete range of crucible stands to provide uniform heating and appropriate mechanical support of the crucible base

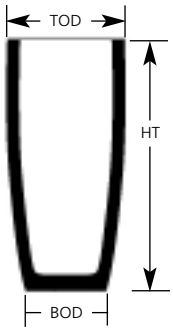


Crucibles for Tilting Furnaces

ISO-ALUSTAR SPOUTED CRUCIBLES (BU_ALUS)	TOD (mm)	HT (mm)	BOD (mm)	L (mm)
TP89ALUS	540	740	300	150
TP16ALUS	540	970	350	150
TP387ALUS	615	630	320	150
TP412ALUS	615	800	320	150
TP512ALUS	615	900	320	150
TP587ALUS	780	900	350	170

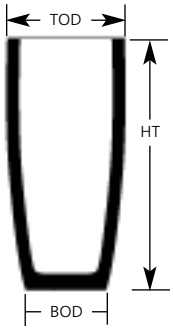


ISO-ALUSTAR SPOUTED BN SHAPE (TBN_ALUS)	TOD (mm)	HT (mm)	BOD (mm)	L (mm)
TBN287ALUS*	525	600	230	170
TBN387ALUS*	615	700	245	170
TBN387HALUS*	615	765	245	170
TBN412ALUS*	615	800	246	170
TBN512ALUS*	615	900	246	170
TBN587ALUS*	780	900	312	170
TBN264ALUS*	780	1000	312	170
TBN687ALUS*	830	900	285	170
TBN690ALUS*	830	1000	285	170
TBN730ALUS	850	990	350	184
TBN750ALUS**	875	880	350	200
TBN800ALUS**	880	1000	350	200
TBN900ALUS**	880	1100	350	200
TBN1100ALUS**	880	1170	350	200
TBN1200ALUS**	880	1250	350	200
TBN1500ALUS**	885	1500	350	200



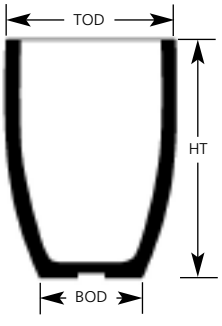
ISO-ALUSTAR POUR OVER TOP (P_ALUS)	TOD (mm)	HT (mm)	BOD (mm)
P8ALUS	420	800	230
P14ALUS	435	1015	235
P15ALUS	540	970	330
P830ALUS	540	1190	330
P980ALUS	680	1220	360
P983ALUS	710	1800	360

Also available with pouring gap in top edge 40mm x 80mm

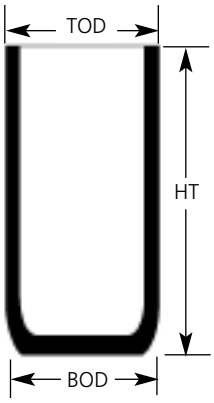


ISO-ALUSTAR POUR OVER TOP (P_ALUS)	TOD (mm)	HT (mm)	BOD (mm)
R500ALUS	480	840	320
R600ALUS	480	940	320

Also available with spout

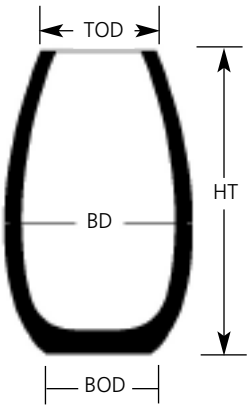


ISO-ALUSTAR FU SHAPE (FU ALUS)	TOD (mm)	HT (mm)	BOD (mm)
FU500ALUS	480	990	320
FU750ALUS	540	1130	330
FU1000ALUS	560	1130	380
FU2500ALUS	780	1250	350
FU3000ALUS	790	1400	350



Cylindrical Crucibles For Induction Furnaces

ISO-ALUSTAR CYLINDERS (ZYL_ALUS)	TOD (mm)	HT (mm)	BOD (mm)
ZYL. 1525 x 525ALUS	525	1525	495
ZYL. 945 x 560ALUS	560	945	540
ZYL. 2025 x 775ALUS	775	2025	510
ZYL. 1505 x 830ALUS	830	1505	800
ZYL. 2025 x 950ALUS	950	2025	740



Crucibles for Distillation Furnaces

ISO-ALUSTAR RETORTS (R_ALU)	TOD (mm)	HT (mm)	BOD (mm)	BD (mm)
R10ALU	300	990	360	545
R11ALU	320	1030	330	590
R12ALU	350	1100	330	645
R14ALU	445	1575	525	810

All dimensions are nominal and subject to normal manufacturing tolerances

***Available with pyrometer pocket**

****Available with pyrometer hole in wall**

Morganite also supplies a complete range of crucible stands to provide uniform heating and appropriate mechanical support of the crucible base

ISO-ALUSTAR Crucibles

INSTALLATION

The stand should be made from the same material as the crucible to ensure uniform heating of the crucible base and provide sufficient mechanical support. The diameter of the stand should be at least the same as the base of the crucible and the height should be such that the base of the crucible is level with the centre line of the burner in fuel-fired furnaces. The stand and crucible should be installed centrally in the furnace.

BALE-OUT FURNACES

The crucible should be installed with an 8mm gap between the upper wall of the crucible and the furnace lining to allow for expansion. Failure to leave a sufficient gap can lead to cracking.

A layer of ceramic fibre insulating material should be placed across the top of the furnace lining and the top surface of the crucible rim in order to seal the chamber and insulate the metal top plates. Ceramic fibre material must not be pushed down between the furnace lining and crucible wall as this would insulate the crucible, prevent the glaze from functioning, and lead to a rapid weakening by oxidation.

Where a flanged metal top ring is fitted to the furnace a 9mm gap should be present between the top ring and crucible wall to allow for expansion. Too small a gap can result in cracking of the crucible.

TILTING FURNACES

Cement the stand on the floor of the furnace and ensure that it is central and level. Place the crucible centrally on the stand and use a thin layer of Morcem 900 cement to bond the crucible and stand together. Use three equi-spaced grip bricks positioned 75mm below the rim of the crucible, leaving a 6-10mm gap between these and the crucible wall for expansion. Insert cardboard spacers in the gap. Leave a clear 38mm space under the spout to prevent the crucible from "hanging up" on the spout.

After the crucible and accessories have been installed, initially fire the furnace slowly in order to release moisture and to set the cement.

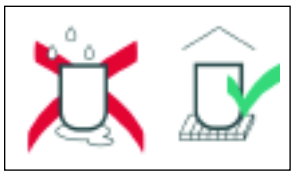
CLEANING OUT

Crucibles should be cleaned out carefully between melts or at least once per day in holding applications while hot in order to remove build-up of oxide dross. In tilting furnaces crucibles should be cleaned in the horizontal position where possible.

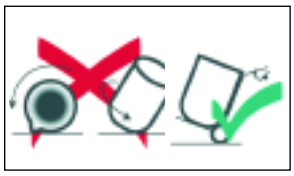
SAFETY

Proper safety clothing must be worn at all times. Ensure that no moisture is introduced into the melt. Provision should be made underneath the furnace to catch metal that may be discharged.

CRUCIBLE CARE

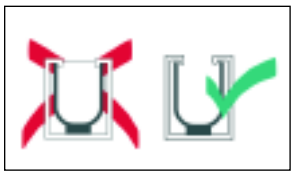

Store crucibles off the floor in a dry, warm place.


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.

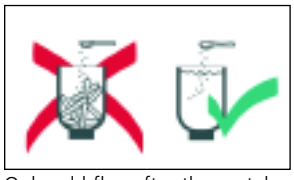

Allow space for expansion between crucible and furnace lining/cover.


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

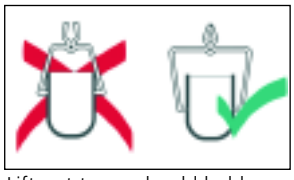

The flame path must be tangential to the crucible.


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 it's 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.

DISTRIBUTED BY

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