R.D. Mathis Company

Vacuum Evaporation Sources Catalog

Leading The Way.

www.rdmathis.com

RD MATHIS COMPANY

Your Best Choice For Quality Hi-Vacuum Evaporation Sources

Welcome to R.D. Mathis Company

The R.D. Mathis Company continues to supply the thin film Industry with quality vacuum evaporation sources as we have since 1963. Since then we have provided innovative and creative solutions to research and development laboratories, university projects and production facilities that have allowed many pioneering thermal evaporation processes to be attempted and completed successfully.

This experience has been incorporated into our wide selection of proven evaporation sources offered in our catalog as well as the modified and custom products we produce everyday in our state of the art manufacturing facility.

Our flexible tooling and highly skilled work force allow us to produce unique one of a kind sources as well as high-volume production quantities with equal ease. All of our refractory materials are high purity, high quality and are processed using specific R.D. Mathis Company requirements. Every source we produce is of the highest quality in the industry and represents value, innovation, reliability and integrity – the cornerstones of our business philosophy.

Along with every source comes our commitment to provide you with the best service possible. Our staff stands ready to provide you with engineering consultation to help determine the right source for you at the best value to make your coating process a success.

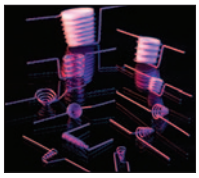
We hope your experience with R.D. Mathis Company is nothing short of exceptional. We look forward to serving you for years to come.

– R.D. Mathis Company

OUR PRODUCTS

FILAMENTS .....Pages 1 – 6

Chrome plated tungsten rods, tungsten filaments, tungsten rod sources, point sources, loop sources and spiral heater filaments.

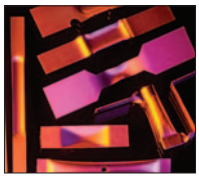


BASKETS & BASKET HEATERS .....Pages 7 – 10

Single and multi-strand tungsten baskets for direct material evaporation and stranded tungsten basket heaters for crucible heating and evaporation.

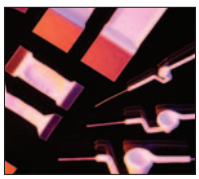
CRUCIBLES & CRUCIBLE HEATERS .....Pages 11 – 16

Crucibles made from alumina, boron nitride, boron nitride composite, graphite, molybdenum, quartz, tantalum, double shielded and single shielded crucible heaters.



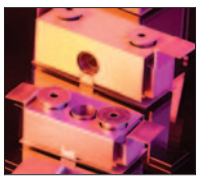
BOAT SOURCES .....Pages 17 – 28

Tungsten, tantalum and molybdenum boat sources, covered boats and folded boats.



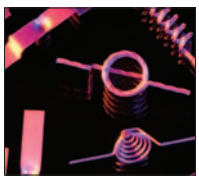
ALUMINA COATED SOURCES .....Pages 29 – 34

Alumina coated tungsten baskets, alumina coated tungsten and molybdenum boats and barrier style alumina coated boats.



BOX SOURCES ..... Pages 35 – 43

Baffled box sources for SiO and ZnS, special welded tantalum boxes and covers, folded boxes, baffles and covers and high volume sources.



MICRO ELECTRONIC SOURCES .....Pages 44 – 47

A full selection of smaller sized sources that require lower power and low volume evaporations. Also includes information on tungsten mesh and screens.

ORDERING OPTIONS

– Call in to speak with one of our sales staff at (562) 426-7049
– Fax your order to: (562) 595-0907
– Email your order to: orders@rdmathis.com
– International orders, send to: intlsales@rdmathis.com
– Order online at: www.rdmathis.com
– Mail your order to:
R.D. Mathis Company
2840 Gundry Avenue, Signal Hill, CA 90755

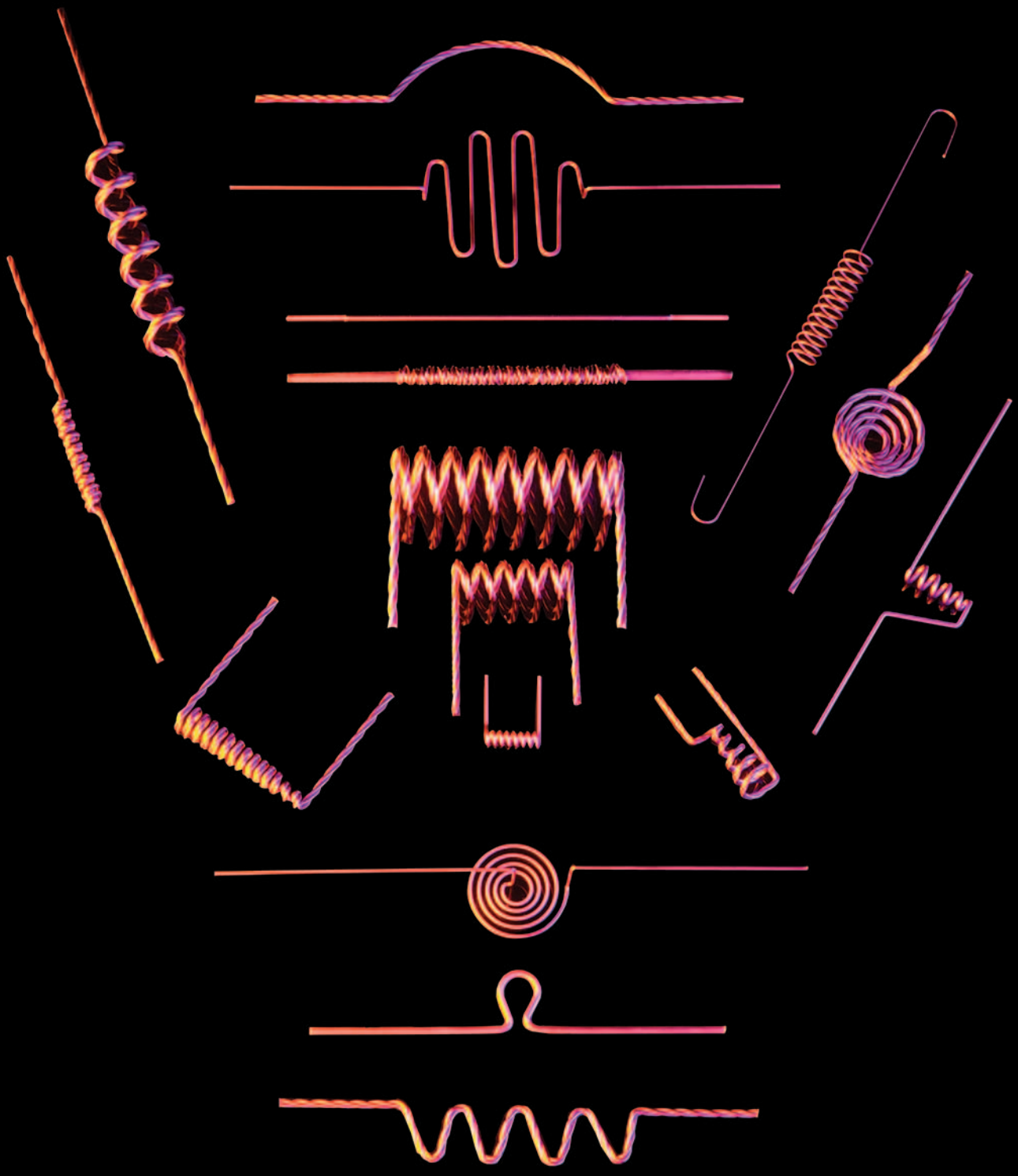
RD MATHIS COMPANY

R.D. MATHIS COMPANY

Specialists in the quality fabrication of Hi-Vacuum Evaporation Sources and Evaporation Materials. Our refractory metal facilities are completely flexible... mass production or small custom orders are produced with equal ease and attention to detail, customer specifications are rigidly adhered to. Engineering consultation is available to solve those difficult “source” problems.

RD Mathis Company

FILAMENTS



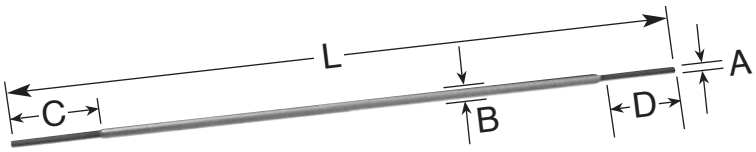
We offer an extensive selection of tungsten filaments, rod sources, point sources, baskets and heaters to fit most applications as well as custom fabrication. Our filaments are made in house using proven fabrication processes and materials, and are of the highest quality, reliability and consistency in the industry. The benefits of using our tungsten metalizing filaments include low cost, high rates with low power (limited capacity), repeatability and ease of use.

TUNGSTEN FILAMENTS FOR VACUUM METALIZING

RD MATHIS COMPANY

CHROME PLATED TUNGSTEN RODS

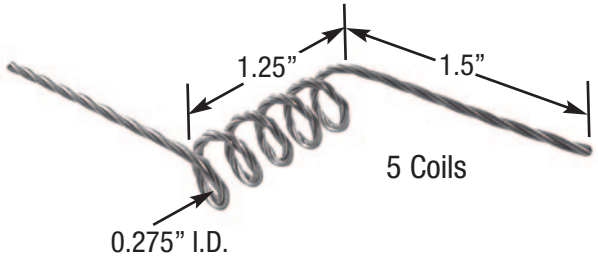
The R.D. Mathis Company chrome plated tungsten rods are used for thin films of chromium in the electronics and optics industry. The advantage over chrome chips are: good thermal efficiency; regulation of film thickness; and elimination of spalling.



The rods are offered in the below configuration as standards.

PART NUMBER	C&D	L	A	B
CRW-1	0.5	2	0.050	0.070
CRW-2	0.5	4	0.050	0.070
CRW-3	0.5	6	0.050	0.070

TUNGSTEN "Z" COIL

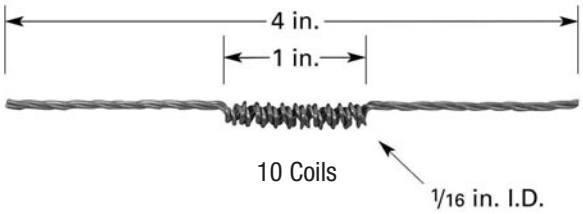


Tungsten Standard Wire. Ideal for Aluminum Evaporation

TYPE	WIRE SIZE
Z1	3x.030W

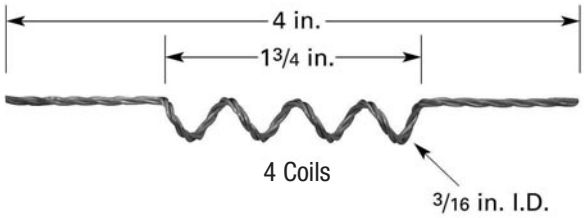
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F1	3x.025W
F1	3x.030W
F1	.040W



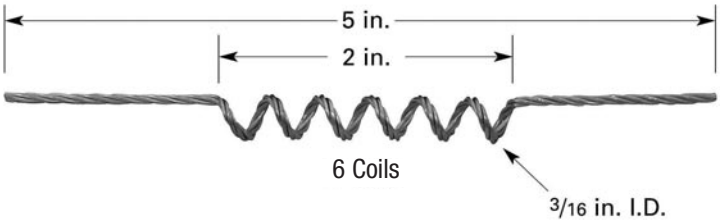
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F2	3x.025W
F2	3x.030W
F2	4x.030W



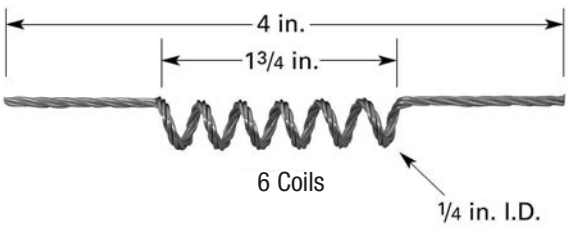
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F3	3x.025W
F3	3x.030W
F3	2x.040W
F3	4x.030W
F3	.040W



TUNGSTEN FILAMENT

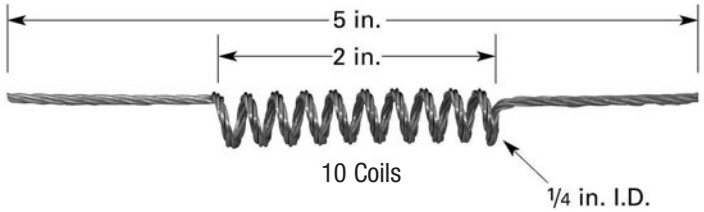
TYPE	WIRE SIZE
F4	3x.025W
F4	3x.030W
F4	4x.030W
F4	2x.040W
F4	.040W



FILAMENTS

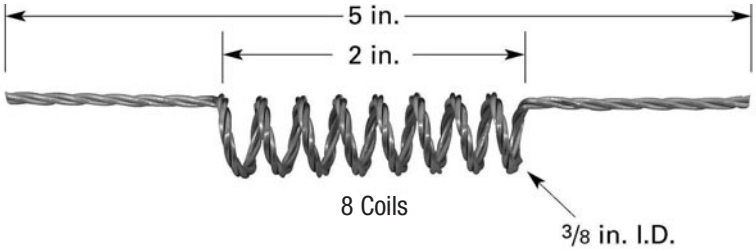
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F5	3x.025W
F5	3x.030W
F5	4x.030W
F5	2x.040W
F5	3x.040W
F5	.040W



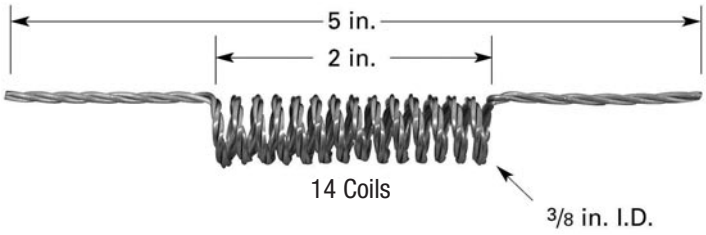
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F6	3x.025W
F6	3x.030W
F6	4x.030W
F6	2x.040W
F6	3x.040W



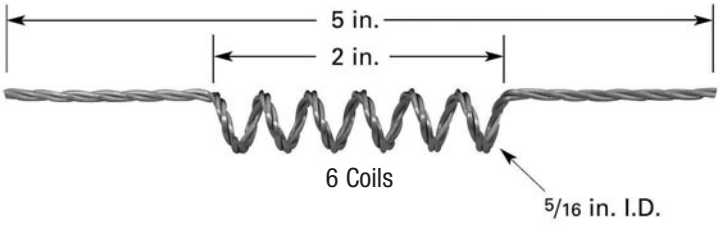
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F7	3x.030W
F7	4x.030W
F7	2x.040W
F7	3x.040W



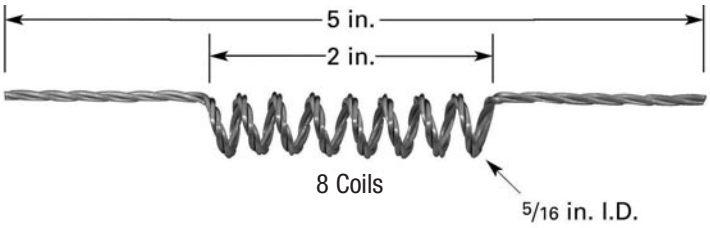
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F8	3x.030W
F8	4x.030W
F8	2x.040W
F8	3x.040W



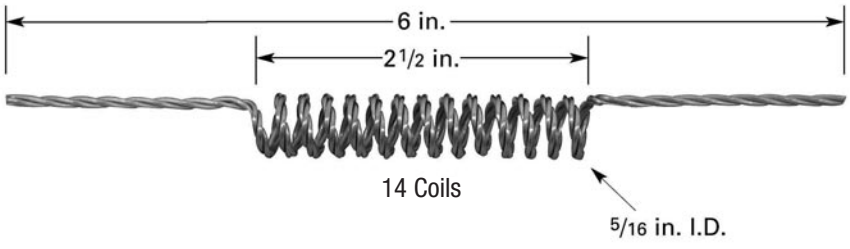
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F9	3x.030W
F9	4x.030W
F9	2x.040W
F9	3x.040W



TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F10	3x.030W
F10	4x.030W
F10	2x.040W
F10	3x.040W

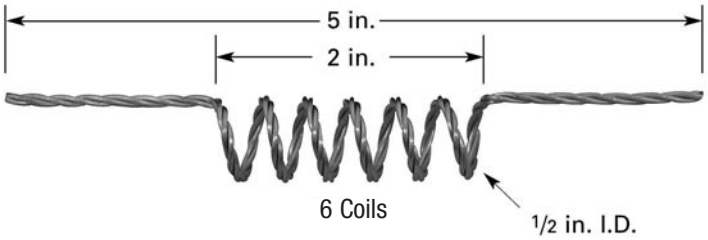


TUNGSTEN FILAMENTS FOR VACUUM METALIZING

RD MATHIS COMPANY

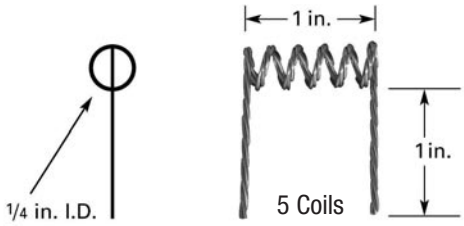
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F11	3x.030W
F11	4x.030W
F11	2x.040W
F11	3x.040W



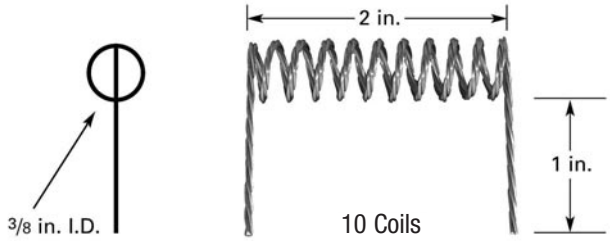
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F12	3x.025W
F12	3x.030W



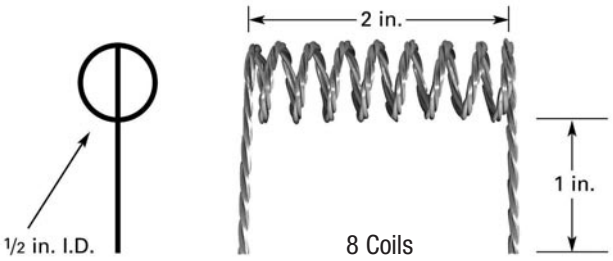
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F13	3x.025W
F13	3x.030W
F13	4x.030W



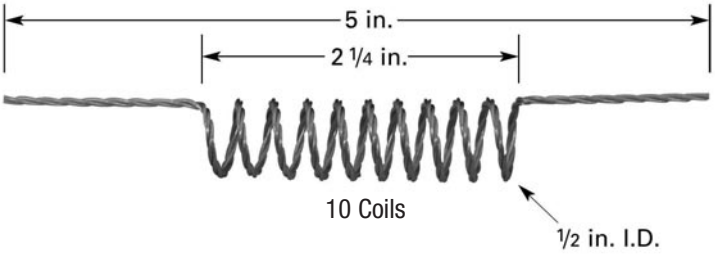
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F14	3x.030W
F14	4x.030W
F14	3x.040W



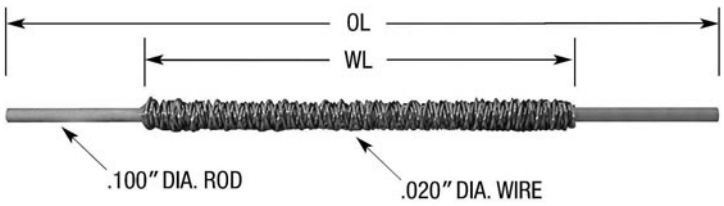
TUNGSTEN FILAMENT

TYPE	WIRE SIZE
F15	3x.030W
F15	4x.030W
F15	3x.040W



TUNGSTEN ROD SOURCE

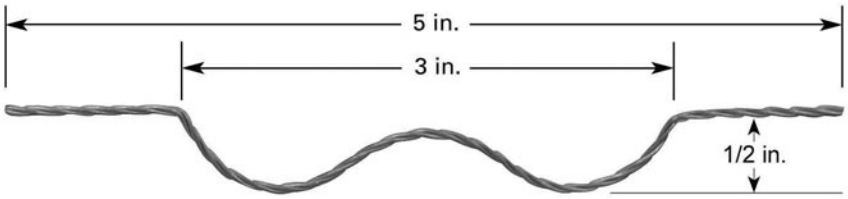
PART #	OL	WL	WRAP LAYERS
F16A	4	2	8
F16B	5	3	8
F16C	5	3	12
F16D	8	6	12



Dimensions are in inches

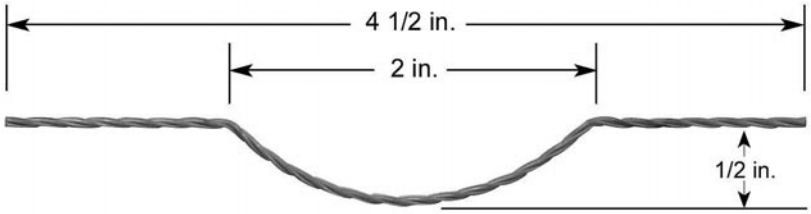
POINT SOURCE LOOP FILAMENT

TYPE	WIRE SIZE
P1	3x.025W
P1	3x.030W
P1	4x.030W
P1	.060W



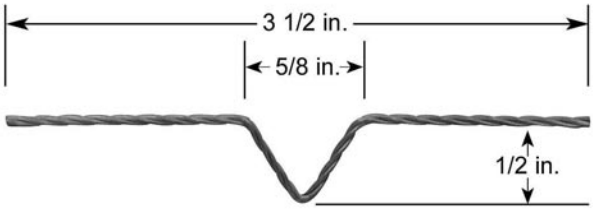
POINT SOURCE LOOP FILAMENT

TYPE	WIRE SIZE
P2	3x.025W
P2	3x.030W
P2	4x.030W
P2	.060W



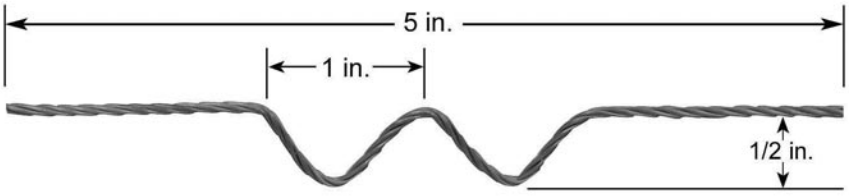
POINT SOURCE LOOP FILAMENT

TYPE	WIRE SIZE
P3	3x.025W
P3	3x.030W
P3	4x.030W
P3	.060W



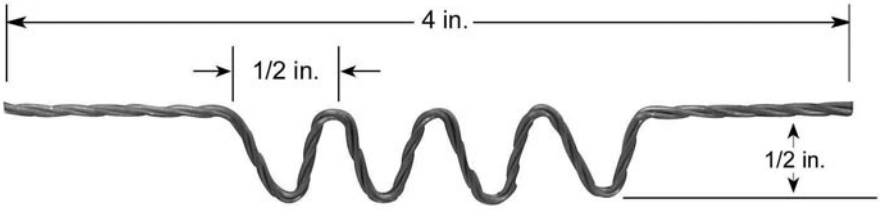
POINT SOURCE LOOP FILAMENT

TYPE	WIRE SIZE
P4	3x.025W
P4	3x.030W
P4	4x.030W
P4	.060W



POINT SOURCE LOOP FILAMENT

TYPE	WIRE SIZE
P5	3x.025W
P5	3x.030W
P5	4x.030W
P5	.040W
P5	.060W

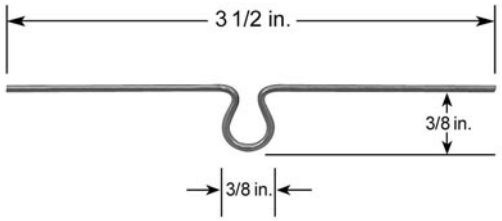


POINT SOURCE LOOP & HEATER FILAMENTS

RD MATHIS COMPANY

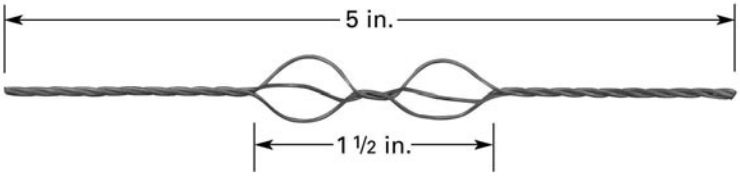
POINT SOURCE LOOP FILAMENT

TYPE	WIRE SIZE
P6	3x.025W
P6	.040W
P6	.060W



POINT SOURCE LOOP FILAMENT

TYPE	WIRE SIZE
P7	3x.030W
P7	4x.030W



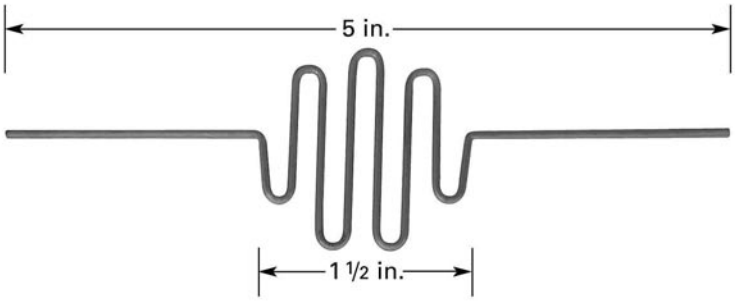
LOOSE LAY WIRE

TYPE	WIRE SIZE
P8	3x.025W
P8	3x.030W

(Loose lay wire order by ft.)

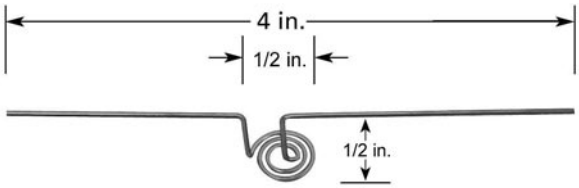
HEATER FILAMENT

TYPE	WIRE SIZE
H1	.040W
H1	.060W



HEATER FILAMENT

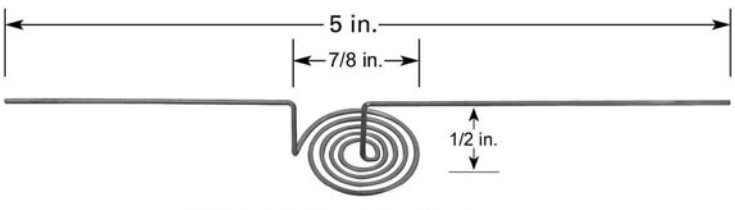
TYPE	WIRE SIZE
H2	.040W
H2	.060W



Note: .060W has one less turn

HEATER FILAMENT

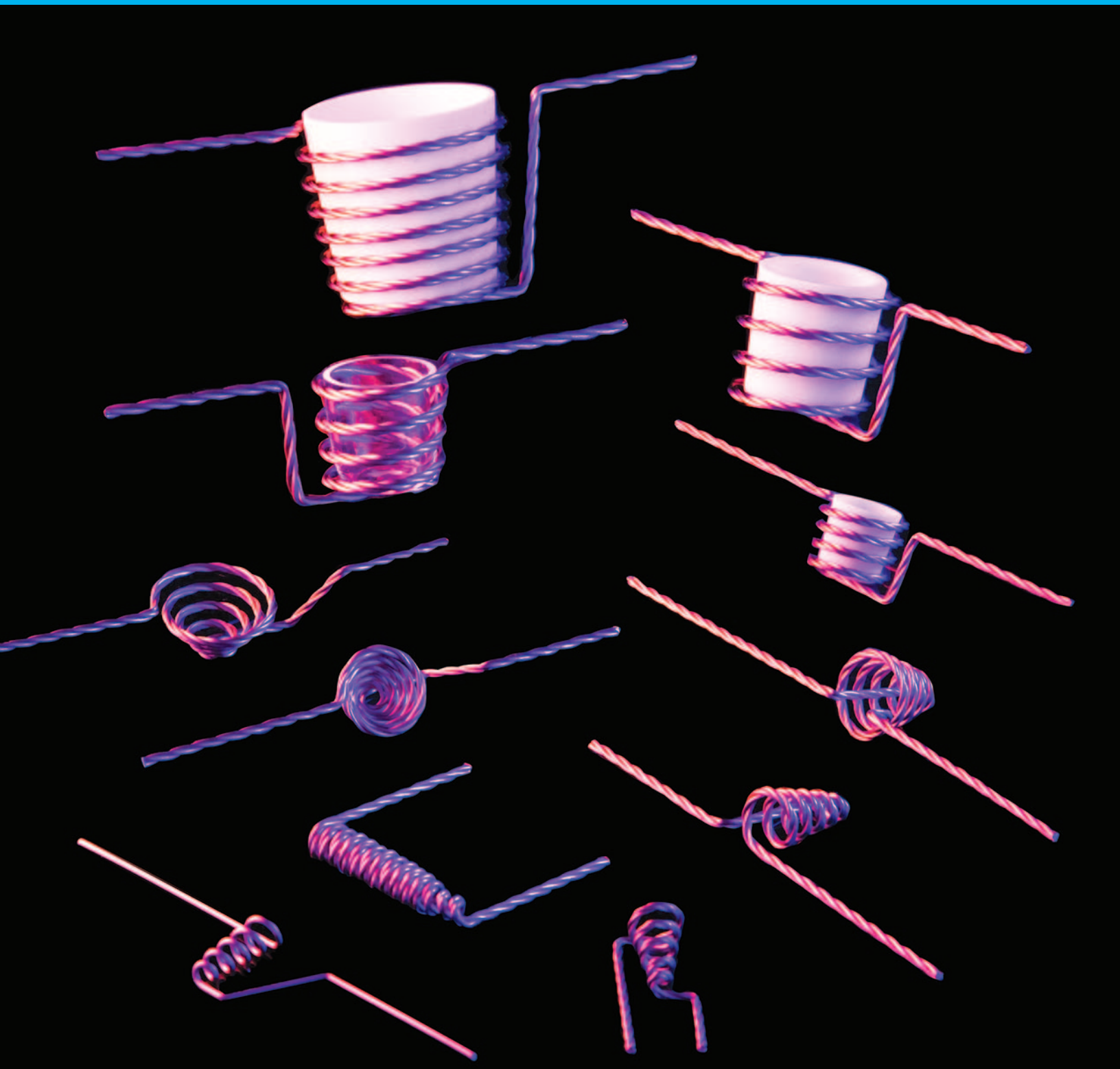
TYPE	WIRE SIZE
H3	.040W
H3	.060W



Note: .060W has two less turns

RD Mathis Company

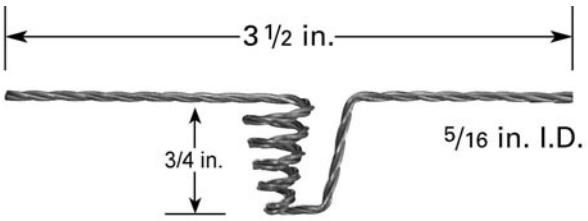
BASKETS



Baskets and basket heaters are made from the highest quality multi-strand or single strand tungsten wire. Our tungsten baskets are ideal for low cost, low volume coatings and require minimal power. Materials can be placed directly into baskets for evaporation. Basket heaters utilize a crucible and can be used for low and high volume coatings. Custom baskets are available.

BASKET

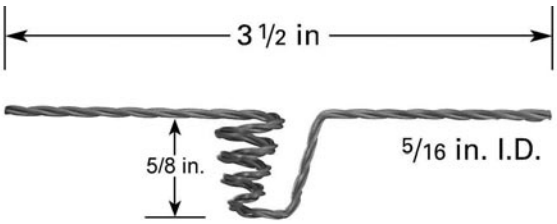
TYPE	WIRE SIZE
B1	3x.025W
B1	3x.030W
B1	.040W



5 Coils

BASKET

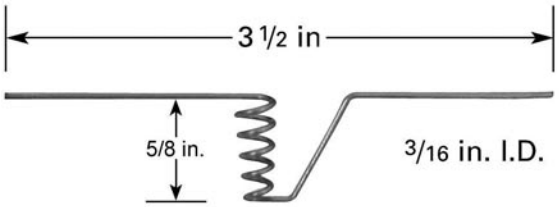
TYPE	WIRE SIZE
B2	3x.025W
B2	3x.030W
B2	.040W



4 Coils

BASKET

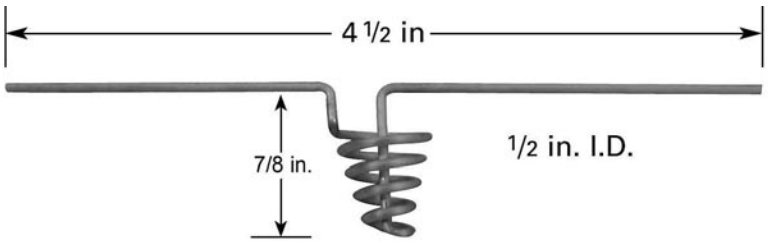
TYPE	WIRE SIZE
B3	3x.025W
B3	.040W



5 Coils

BASKET

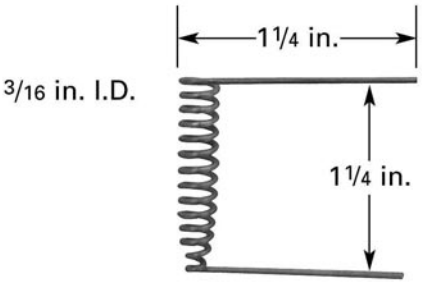
TYPE	WIRE SIZE
B4	3x.030W
B4	.060W



5 Coils

BASKET

TYPE	WIRE SIZE
B5	3x.025W
B5	.040W

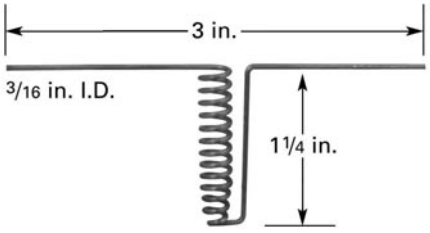


13 Coils

BASKETS

BASKET

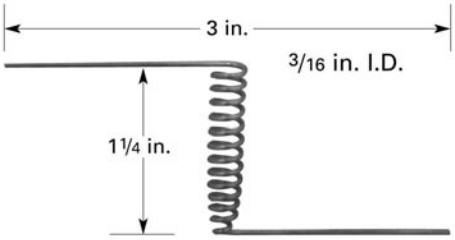
TYPE	WIRE SIZE
B6	3x.025W
B6	.040W



13 Coils

BASKET

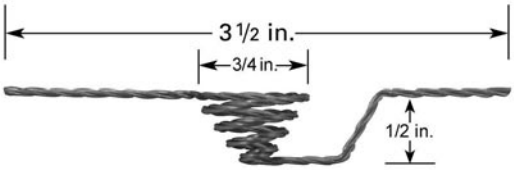
TYPE	WIRE SIZE
B7	3x.025W
B7	.040W



13 Coils

BASKET

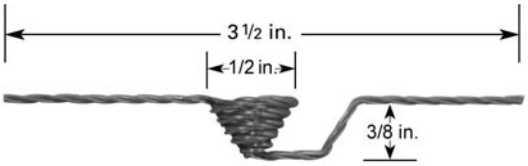
TYPE	WIRE SIZE
B12A	3x.025W
B12A	3x.030W
B12A	.040W



4 Coils

BASKET

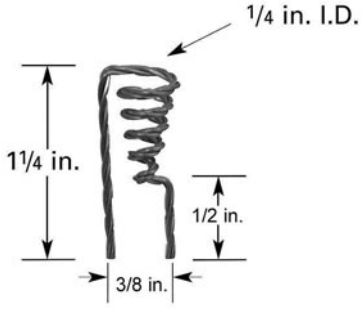
TYPE	WIRE SIZE
B12B	3x.025W
B12B	3x.030W
B12B	.040W
B12B	.060W



5 Coils

BASKET

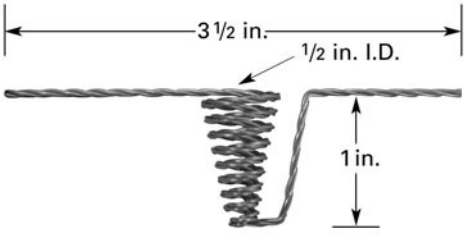
TYPE	WIRE SIZE
B13	3x.025W
B13	3x.030W
B13	.040W



5 Coils

BASKET

TYPE	WIRE SIZE
B14	3x.030W
B14	4x.030W
B14	.060W

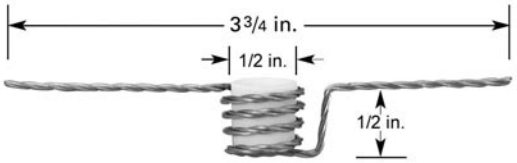


9 Coils

BASKET HEATERS

TYPE	WIRE SIZE
B8A	3x.025W
B8A	3x.030W

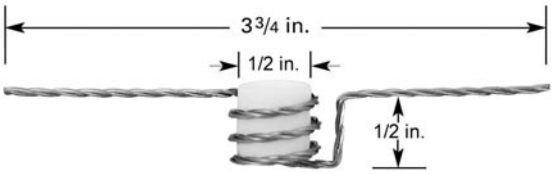
Use with C1 Crucible



BASKET HEATERS

TYPE	WIRE SIZE
B8B	3x.025W
B8B	3x.030W

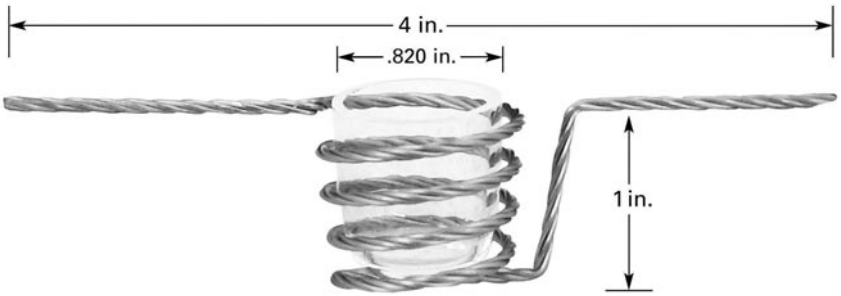
Use with C9 Crucible



BASKET HEATERS

TYPE	WIRE SIZE
B9	3x.030W
B9	4x.030W
B9	3x.040W

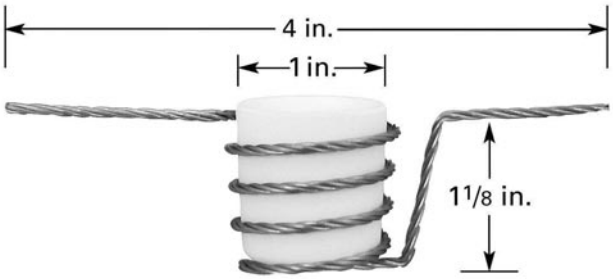
Use with C2 Crucible



BASKET HEATERS

TYPE	WIRE SIZE
B10	4x.030W
B10	3x.040W

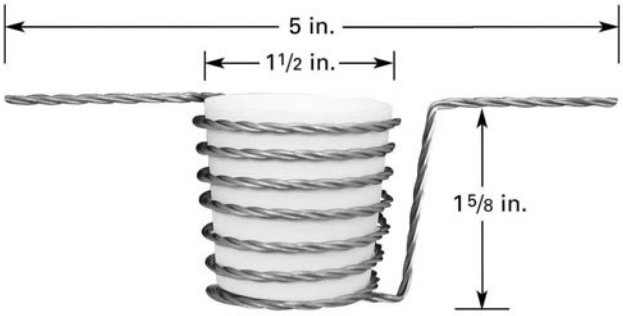
Use with C5 Crucible



BASKET HEATERS

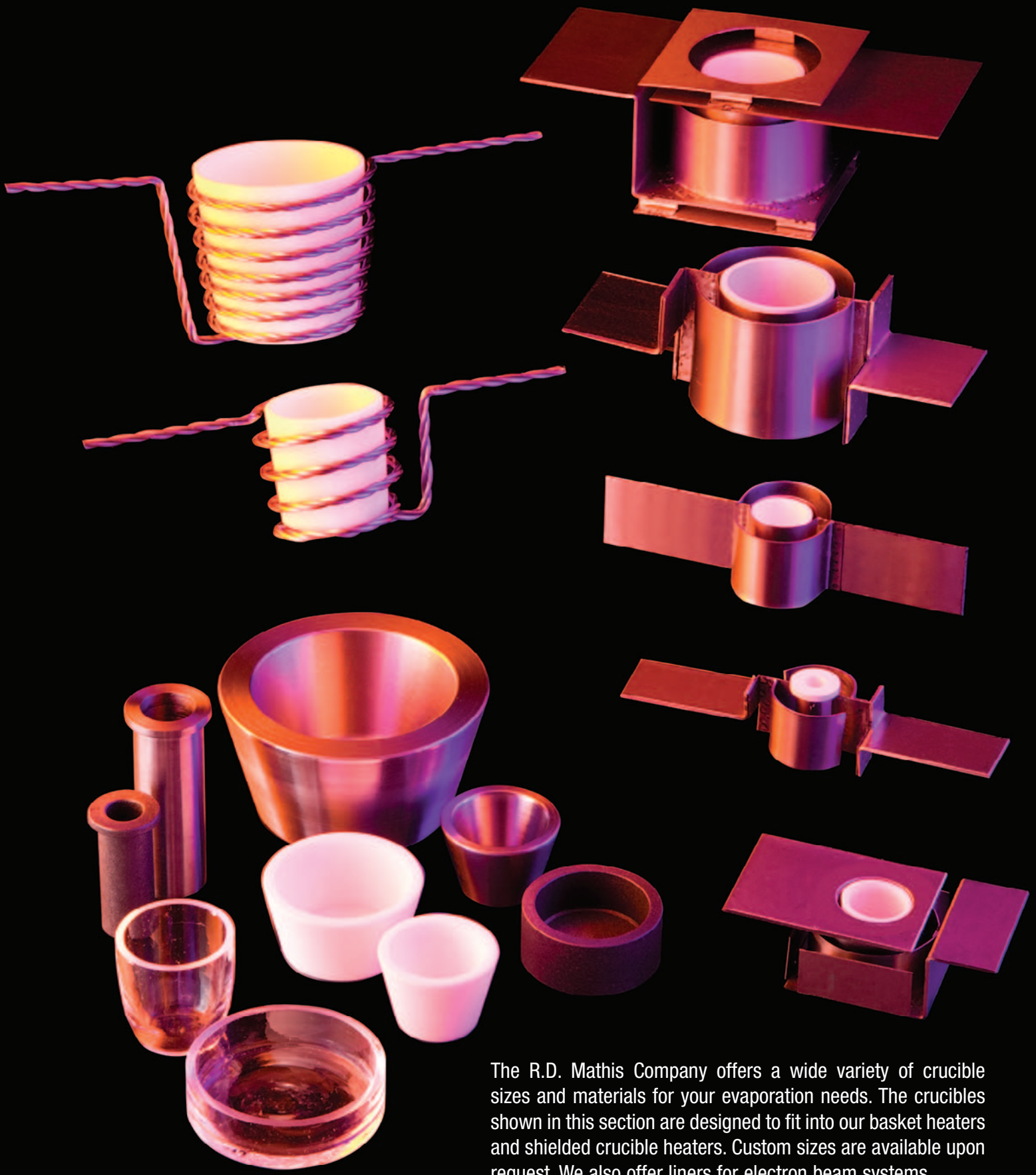
TYPE	WIRE SIZE
B11	3x.040W

Use with C6 Crucible



RD Mathis Company

CRUCIBLES



The R.D. Mathis Company offers a wide variety of crucible sizes and materials for your evaporation needs. The crucibles shown in this section are designed to fit into our basket heaters and shielded crucible heaters. Custom sizes are available upon request. We also offer liners for electron beam systems.

CRUCIBLES

RD MATHIS COMPANY

CRUCIBLE

TYPE	MATERIAL
C1	AO Alumina Oxide
C1	Q Quartz
C1	BN Boron Nitride*
C1	BNC Boron Nitride Composite*

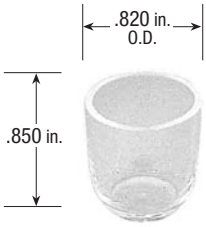
Use with B8A Basket and with CH-1, CH-10, CH-11, ME-19 Heaters and ME18A Basket

Wall thickness .040

Tapered

CRUCIBLE

TYPE	MATERIAL
C2	Q Quartz



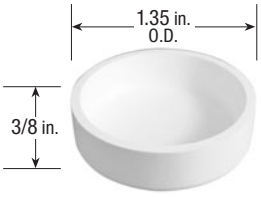
Use with B-9 Basket

Wall thickness .050

Tapered

CRUCIBLE

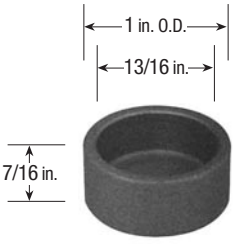
TYPE	MATERIAL
C3	Q Quartz



Wall thickness .070

CRUCIBLE

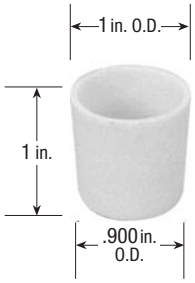
TYPE	MATERIAL
C4	Ta Tantalum
C4	Mo Molybdenum
C4	C Carbon



Wall thickness .090

CRUCIBLE

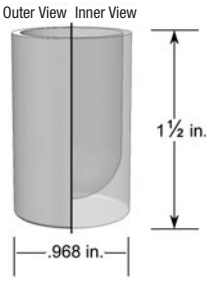
TYPE	MATERIAL
C5	AO Alumina Oxide
C5	Q Quartz
C5	BN Boron Nitride*
C5	BNC Boron Nitride Composite*



Use with CH-5, CH-12 and CH-13 Heaters and with B10 Basket. Wall thickness .060. Tapered

CRUCIBLE

TYPE
C5-BNC-CL

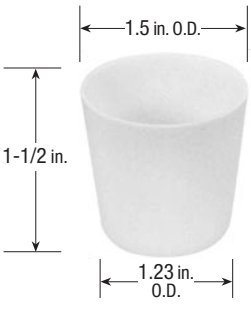


Cool Lip Crucible

Straight Wall
Wall Thickness .070
Use with CH-5 Only

CRUCIBLE

TYPE	MATERIAL
C6	AO Alumina Oxide
C6	Q Quartz



Use with CH-6 and CH-14 Heater and with B11 Basket

Wall thickness .070

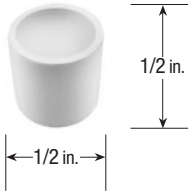
Tapered

CRUCIBLES

RD MATHIS COMPANY

CRUCIBLE

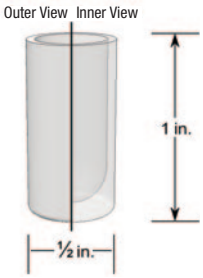
TYPE	MATERIAL
C9	AO Alumina Oxide
C9	Q Quartz
C9	BN Boron Nitride*
C9	BNC Boron Nitride Composite*
C9	Ta Tantalum
C9	Mo Molybdenum
C9	C Carbon



Use with CH-1, CH-10, CH-11 and ME-19 Heaters B8B and ME18B Baskets. Wall thickness .040. Straight Wall

CRUCIBLE

TYPE
C9-BNC-CL



Cool Lip Crucible

Straight Wall
Wall Thickness .048
Use with CH-1 and ME-19

CRUCIBLE

TYPE	MATERIAL
C7	BN Boron Nitride*
C7	C Carbon
C7	Q Quartz
C7	Ta Tantalum
C7	Mo Molybdenum

Use with CH-7 Heater

Susceptor Type
1/4 in. I.D.

CRUCIBLE

TYPE	MATERIAL
C10	BN Boron Nitride*
C10	C Carbon
C10	Q Quartz
C10	Ta Tantalum
C10	Mo Molybdenum

Use with CH-9 and ME-20 Heaters

Susceptor Type
5/32 in. I.D.

CRUCIBLE

TYPE	MATERIAL
C8	BN Boron Nitride*
C8	C Carbon
C8	Q Quartz
C8	Ta Tantalum
C8	Mo Molybdenum

Use with CH-8 Heater

Susceptor Type
3/8 in. I.D.

*BORON NITRIDES

Boron Nitride is similar to graphite in crystal structure. It is an excellent dielectric over a wide range of temperatures. It is not attacked by many materials used for thin film fabrication. All Boron Nitride crucibles should be slowly heated and thoroughly outgassed before use. Custom Boron Nitride, Carbon, Tantalum and Molybdenum crucibles on request.

HEAT SHIELDED CRUCIBLE HEATERS (TO 1800°C)

RD MATHIS COMPANY

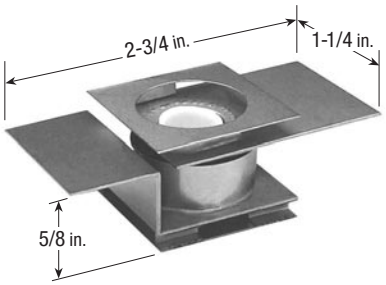
Shielded Crucible Heaters provide uniform heating to the installed crucible and allow very high rates, as well as high temperatures, up to 1800°C, to be achieved. Due to the rigid construction, heater and crucible life is extended. The thermal shields protect your vacuum components by reducing the radiant heat that your system is exposed to. Custom sizes are available on request. Please contact our technical staff if you would like more information about these products.

CRUCIBLE HEATER

TYPE
CH-1

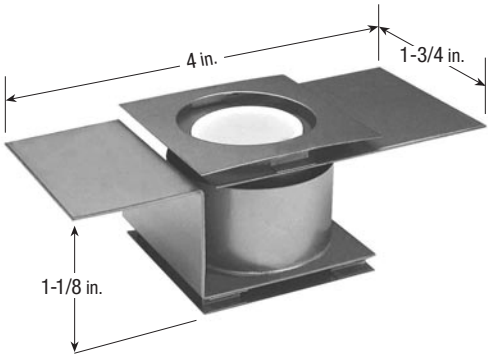
Use with C1 and C9 Crucibles

Crucible size
1/2 in. x 1/2 in.



CRUCIBLE HEATER

TYPE
CH-5

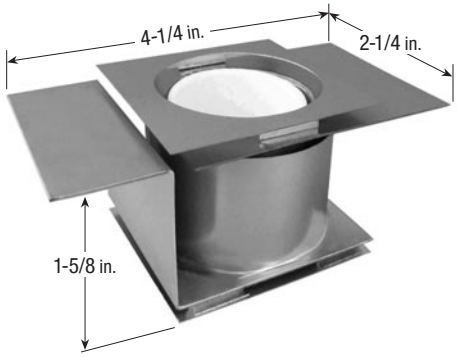


Use with C5 Crucible

Crucible size
1 in. x 1 in.

CRUCIBLE HEATER

TYPE
CH-6

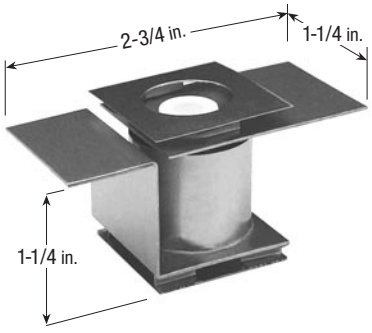


Use with C6 Crucible

Crucible size
1-1/2 in. x 1-1/2

CRUCIBLE HEATER

TYPE
CH-7



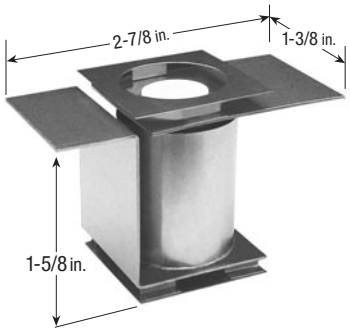
Use with C7 Crucible

Susceptor Type

Crucible size
3/8 in. x 1 in.

CRUCIBLE HEATER

TYPE
CH-8



Use with C8 Crucible

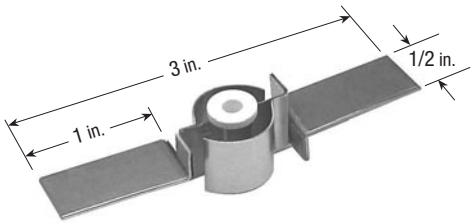
Susceptor Type

Crucible size
1/2 in. x 1-1/2 in.

CRUCIBLE HEATER

TYPE
CH-9

Use with C10 Crucible



Susceptor Type

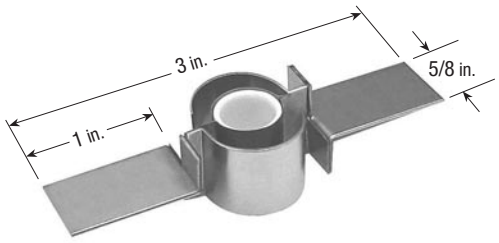
Horizontal Leads

Crucible size
1/4 in. x 1/2 in.

CRUCIBLE HEATER

TYPE
CH-10

Use with C1 and C9
Crucibles



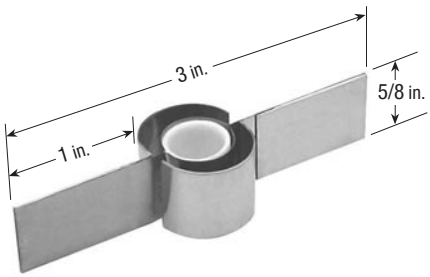
Horizontal Leads

Crucible size
1/2 in. x 1/2 in.

CRUCIBLE HEATER

TYPE
CH-11

Use with C1 and
C9 Crucibles



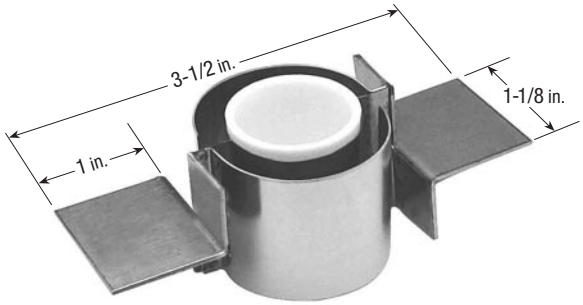
Vertical Leads

Crucible size
1/2 in. x 1/2 in.

CRUCIBLE HEATER

TYPE
CH-12

Use with C5 Crucible



Horizontal Leads

Crucible size
1 in. x 1 in.

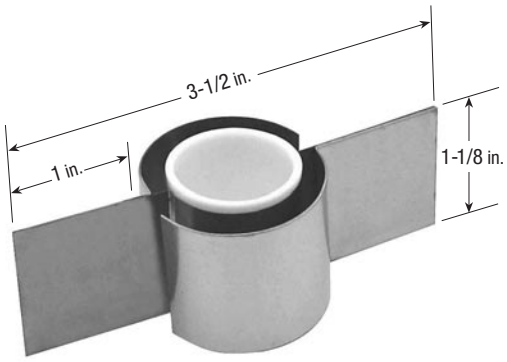
HEAT SHIELDED CRUCIBLE HEATERS (TO 1800°C)

RD MATHIS COMPANY

CRUCIBLE HEATER

TYPE
CH-13

Use with C5
Crucible



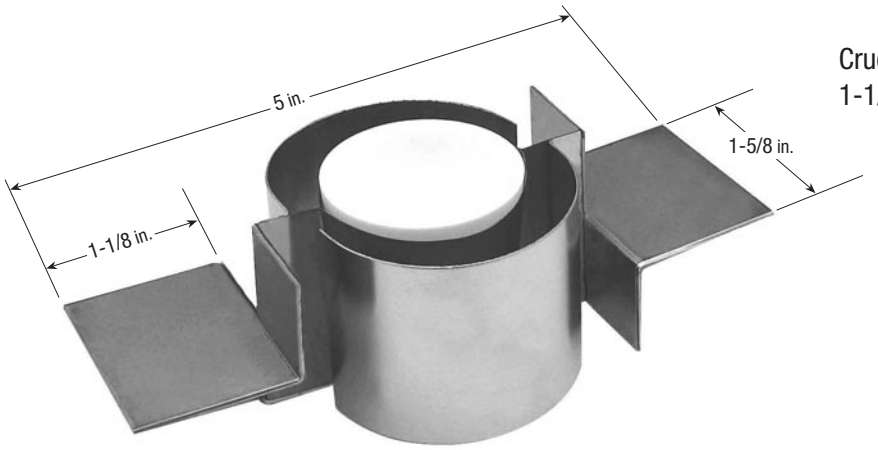
Vertical Leads

Crucible size
1 in. x 1 in.

CRUCIBLE HEATER

TYPE
CH-14

Use with C6
Crucible



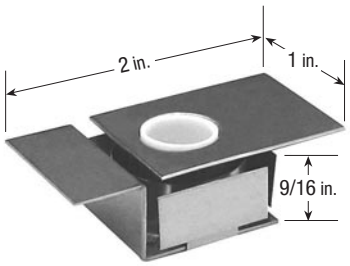
Horizontal Leads

Crucible size
1-1/2 in. x 1-1/2 in.

CRUCIBLE HEATER

TYPE
ME-19

Use with C1 and
C9 Crucibles

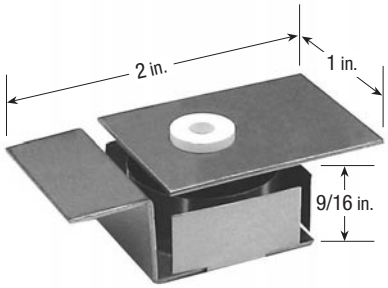


Crucible size
1/2 in. x 1/2 in.

CRUCIBLE HEATER

TYPE
ME-20

Use with C10 Crucible

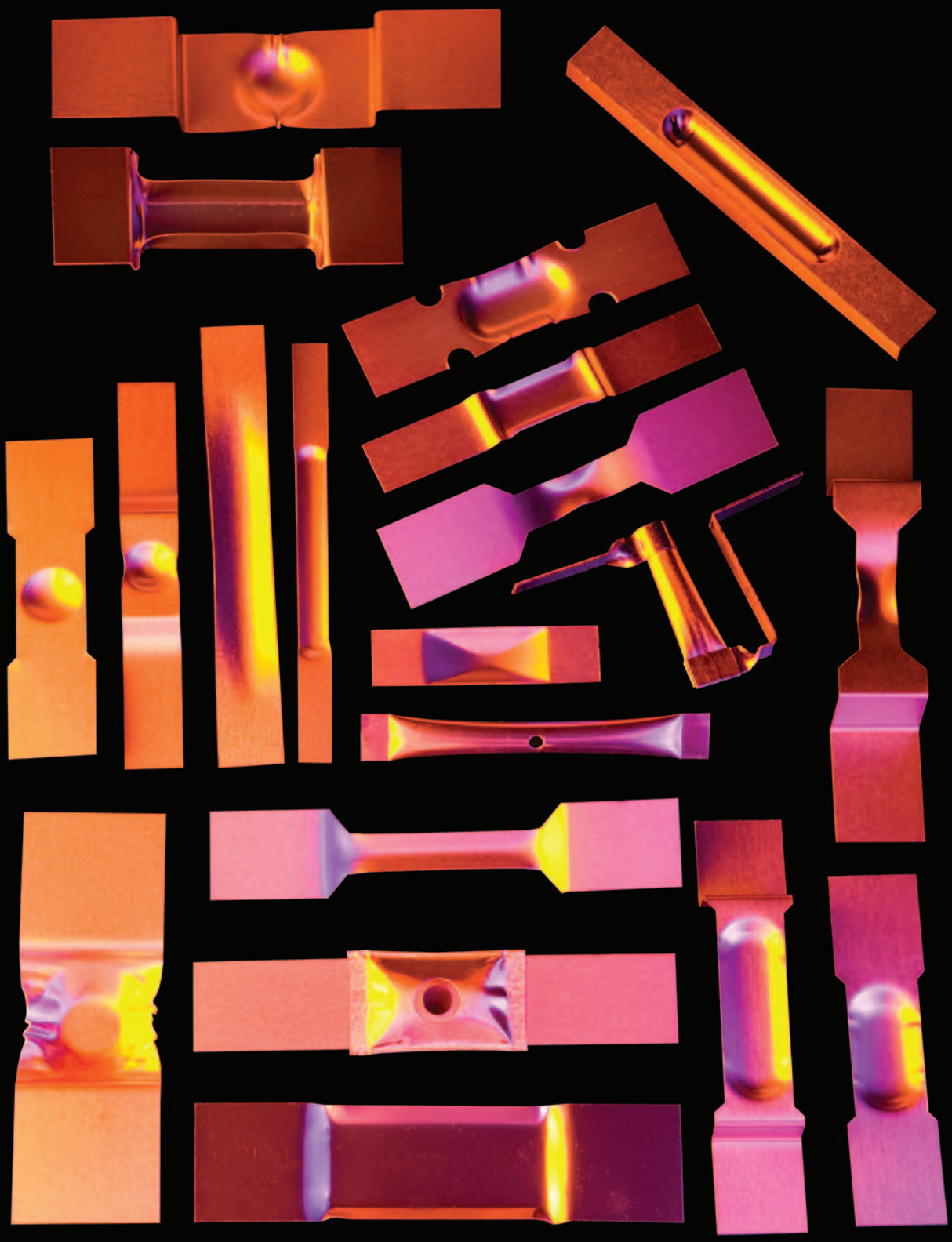


Susceptor Type

Crucible size
1/4 in. x 1/2 in.

RD Mathis Company

BOAT SOURCES



Evaporation boats are capable of depositing a wide variety of materials. The R.D. Mathis Company offers an extensive selection of standard tungsten, tantalum and molybdenum boats, as well as, custom fabrication to meet your specific evaporation needs. All of our evaporation boats are made in our factory, using the highest quality materials and processes. Our boats are available in a variety of materials and thicknesses. If you need help in selecting the right boat for your process, or need a custom boat, please give our technical staff a call.

TUNGSTEN WIRE MIXTURE WWMIX

TYPE	MATERIAL
WWMIX-1OZ	
WWMIX-1LB	

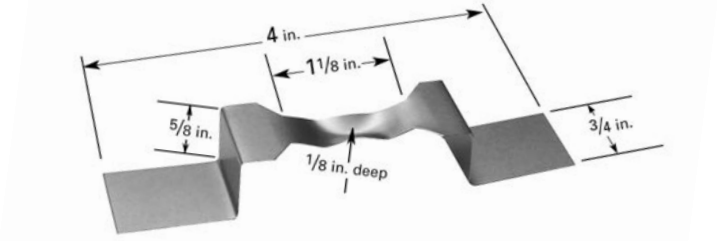
We developed our tungsten wire mixture to help with controlling the migration and corrosiveness of many materials.

- Aluminum, for example, will wet to the tungsten clippings, giving aluminum more surface area within the evaporation area of the boat.
- The wire mixture acts as a sponge, retaining molten material in the boat.
- These act as sacrificial clippings against the corrosiveness of many materials.

Sprinkle the clippings in as an additive with your evaporation pellets or wire.

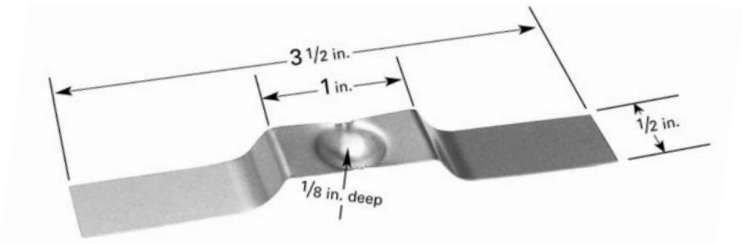
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S1	.005W	S1	.010Ta
S1	.010W	S1	.005Mo
S1	.015W	S1	.010Mo
S1	.005Ta		



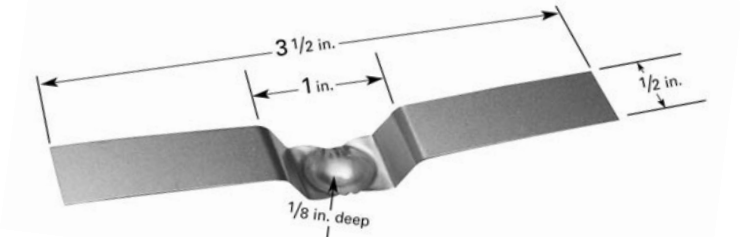
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S2A	.005W	S2A	.010Ta
S2A	.010W	S2A	.005Mo
S2A	.015W	S2A	.010Mo
S2A	.005Ta		



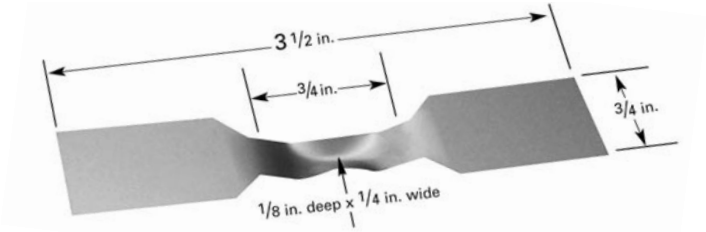
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S2B	.005W	S2B	.010Ta
S2B	.010W	S2B	.005Mo
S2B	.015W	S2B	.010Mo
S2B	.005Ta		



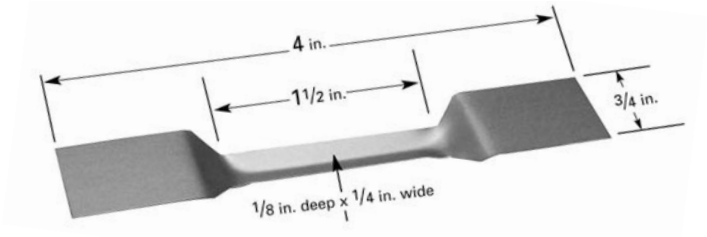
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S3	.005W	S3	.010Ta
S3	.010W	S3	.005Mo
S3	.015W	S3	.010Mo
S3	.005Ta		



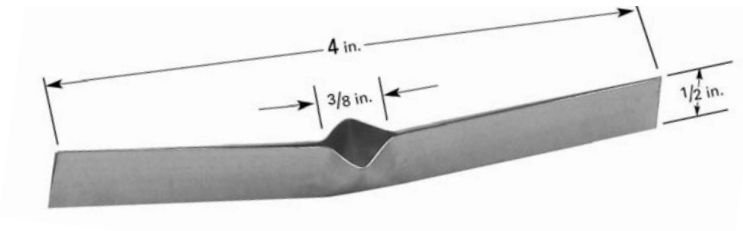
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S4	.005W	S4	.010Ta
S4	.010W	S4	.005Mo
S4	.015W	S4	.010Mo
S4	.005Ta		



BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S5	.005W	S5	.005Mo
S5	.005Ta	S5	.010Mo
S5	.010Ta		



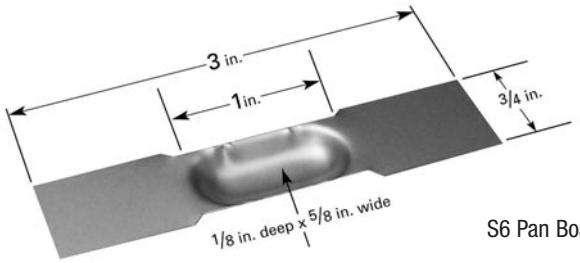
W = Tungsten Ta = Tantalum Mo = Molybdenum Nb = Niobium

RD Mathis Company

BOAT SOURCES

BOAT SOURCE

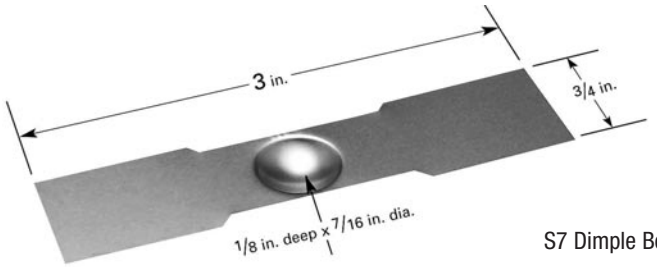
TYPE	MATERIAL	TYPE	MATERIAL
S6	.005W	S6	.005Mo
S6	.010W	S6	.010Mo
S6	.005Ta		
S6	.010Ta		



S6 Pan Boat

BOAT SOURCE

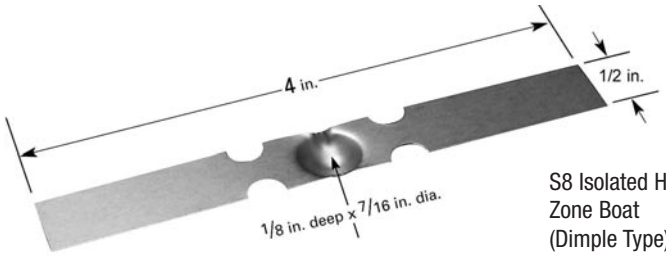
TYPE	MATERIAL	TYPE	MATERIAL
S7	.005W	S7	.005Mo
S7	.010W	S7	.010Mo
S7	.005Ta		
S7	.010Ta		



S7 Dimple Boat

BOAT SOURCE

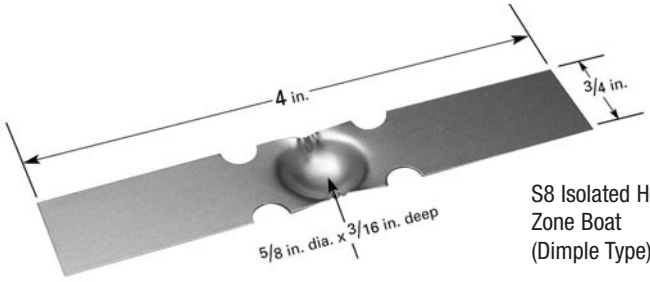
TYPE	MATERIAL	TYPE	MATERIAL
S8A	.005W	S8A	.010Ta
S8A	.010W	S8A	.005Mo
S8A	.015W	S8A	.010Mo
S8A	.005Ta		



S8 Isolated Hot Zone Boat (Dimple Type)

BOAT SOURCE

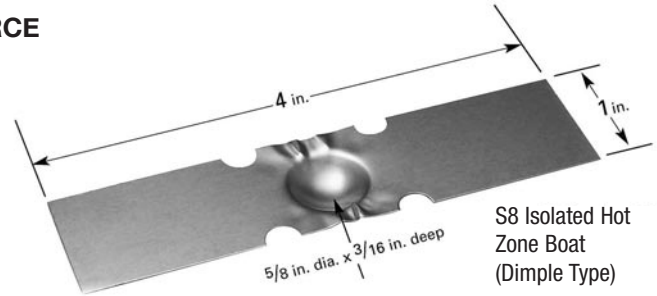
TYPE	MATERIAL	TYPE	MATERIAL
S8B	.005W	S8B	.010Ta
S8B	.010W	S8B	.005Mo
S8B	.015W	S8B	.010Mo
S8B	.005Ta		



S8 Isolated Hot Zone Boat (Dimple Type)

BOAT SOURCE

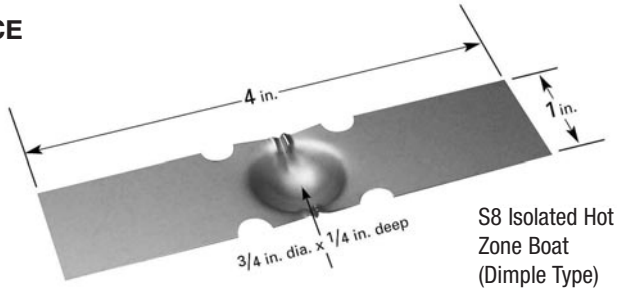
TYPE	MATERIAL
S8C	.010W
S8C	.010Ta
S8C	.015Ta
S8C	.010Mo
S8C	.015Mo



S8 Isolated Hot Zone Boat (Dimple Type)

BOAT SOURCE

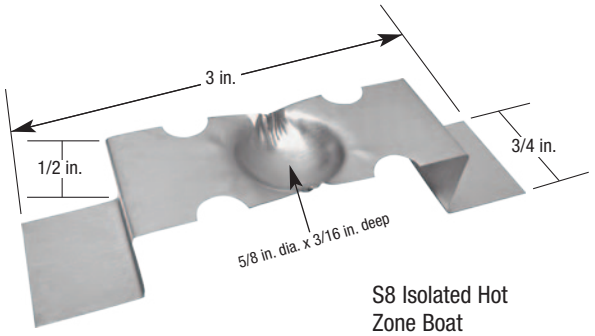
TYPE	MATERIAL
S8D	.010W
S8D	.010Ta
S8D	.015Ta
S8D	.010Mo
S8D	.015Mo



S8 Isolated Hot Zone Boat (Dimple Type)

BOAT SOURCE

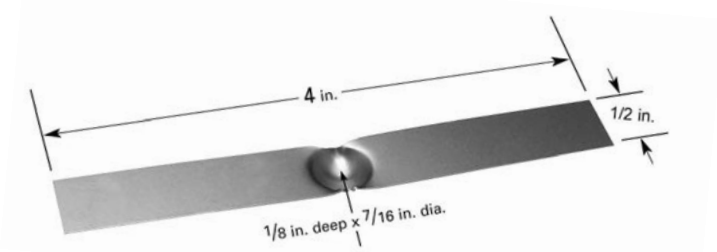
TYPE	MATERIAL	TYPE	MATERIAL
S8E	.005W	S8E	.010Ta
S8E	.010W	S8E	.005Mo
S8E	.005Ta	S8E	.010Mo



S8 Isolated Hot Zone Boat (Dimple Type)

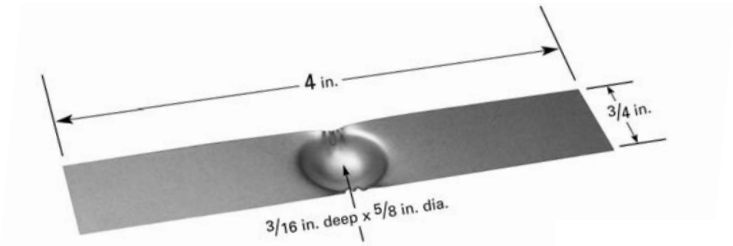
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S9A	.005W	S9A	.010Ta
S9A	.010W	S9A	.005Mo
S9A	.015W	S9A	.010Mo
S9A	.005Ta		



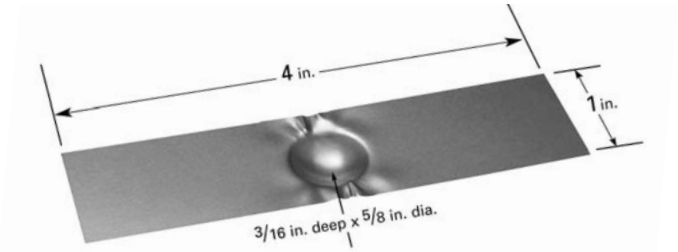
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S9B	.005W	S9B	.010Ta
S9B	.010W	S9B	.005Mo
S9B	.015W	S9B	.010Mo
S9B	.005Ta		



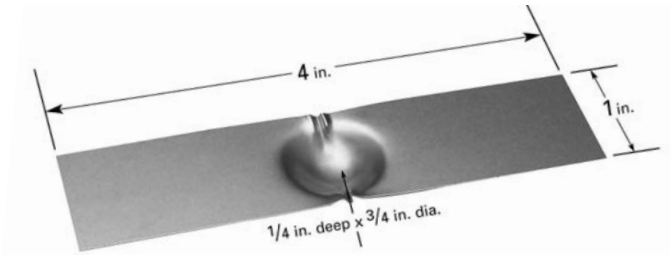
BOAT SOURCE

TYPE	MATERIAL
S9C	.010W
S9C	.010Ta
S9C	.015Ta
S9C	.010Mo
S9C	.015Mo



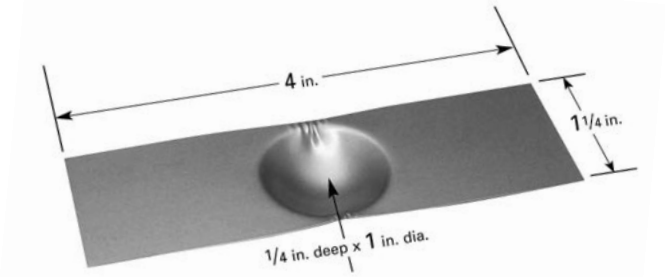
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S9D	.010W	S9D	.010Mo
S9D	.010Ta	S9D	.015Mo
S9D	.015Ta		
S9D	.025Ta		



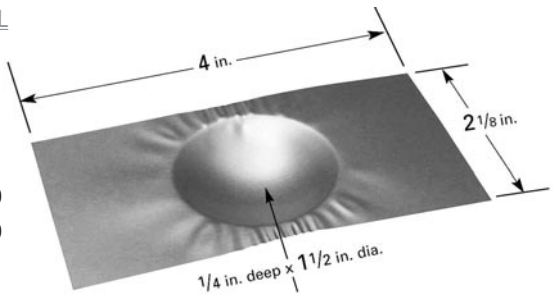
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S9E	.010W	S9E	.010Mo
S9E	.010Ta	S9E	.015Mo
S9E	.015Ta		
S9E	.025Ta		



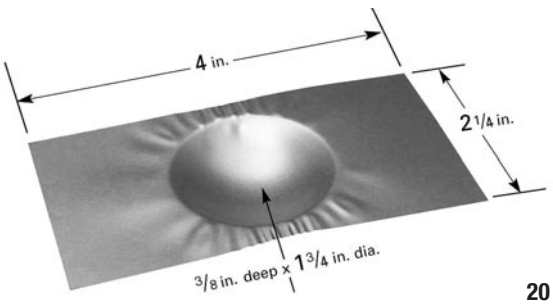
BOAT SOURCE

TYPE	MATERIAL
S9F	.010W
S9F	.010Ta
S9F	.015Ta
S9F	.025Ta
S9F	.010Mo
S9F	.015Mo



BOAT SOURCE

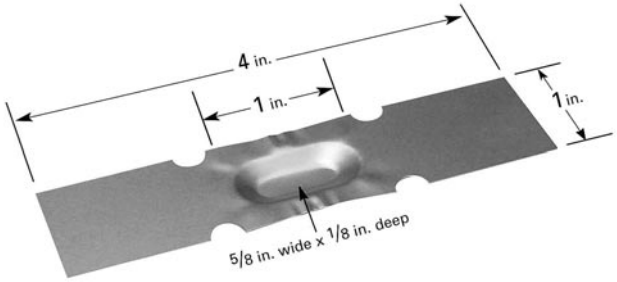
TYPE	MATERIAL
S9G	.010Mo
S9G	.010Ta



BOAT SOURCES

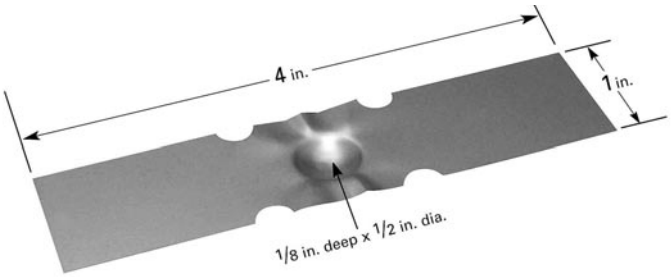
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S10	.005W	S10	.005Mo
S10	.010W	S10	.010Mo
S10	.005Ta		
S10	.010Ta		



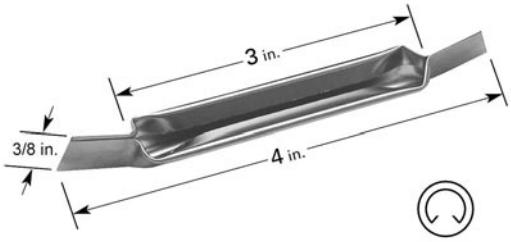
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S11	.005W	S11	.005Mo
S11	.010W	S11	.010Mo
S11	.005Ta		
S11	.010Ta		



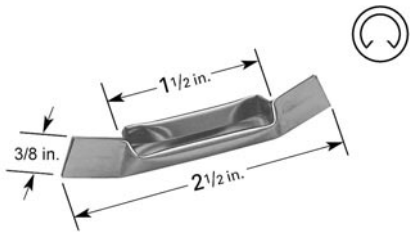
BOAT SOURCE

TYPE	MATERIAL
S12A	.005Ta
S12A	.010Ta
S12A	.005Mo
S12A	.010Mo



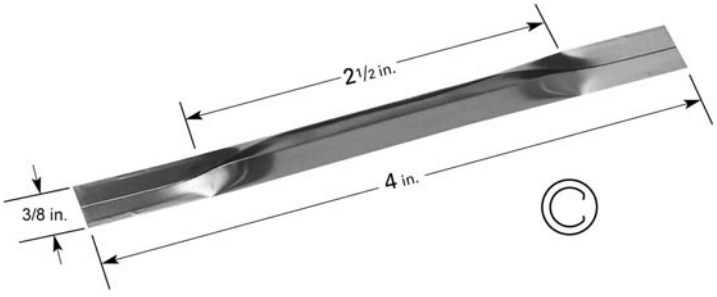
BOAT SOURCE

TYPE	MATERIAL
S12B	.005Ta
S12B	.010Ta
S12B	.005Mo
S12B	.010Mo



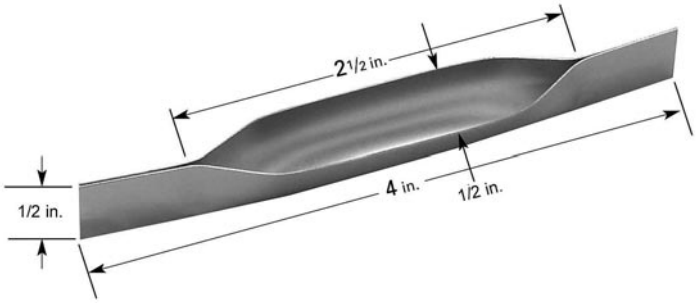
BOAT SOURCE

TYPE	MATERIAL
S13	.005W
S13	.005Ta
S13	.010Ta
S13	.005Mo
S13	.010Mo



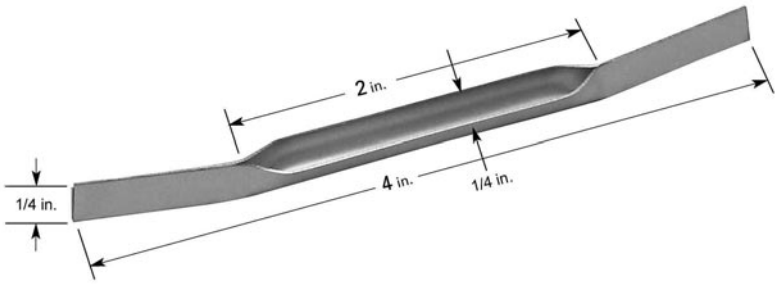
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S14	.005W	S14	.010Ta
S14	.010W	S14	.005Mo
S14	.015W	S14	.010Mo
S14	.005Ta		



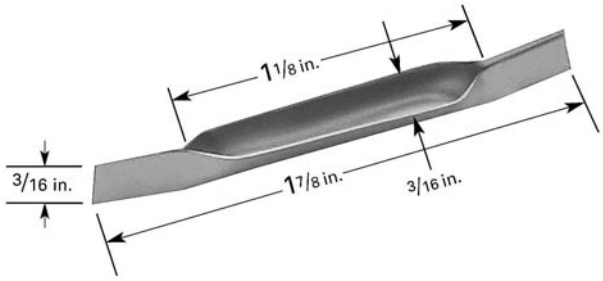
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S15	.005W	S15	.010Ta
S15	.010W	S15	.005Mo
S15	.015W	S15	.010Mo
S15	.005Ta		



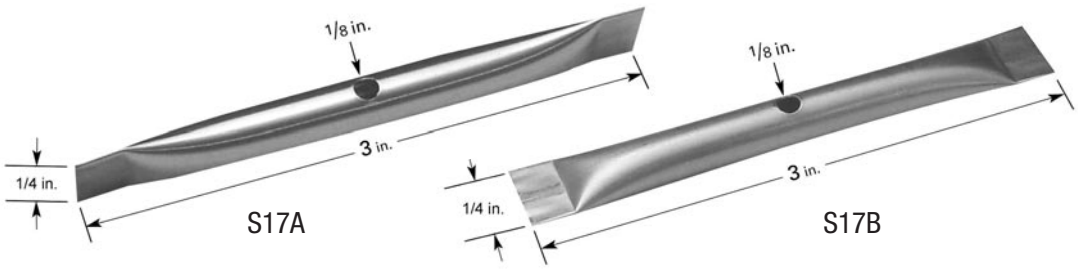
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S16	.005W	S16	.005Mo
S16	.010W	S16	.010Mo
S16	.005Ta		
S16	.010Ta		



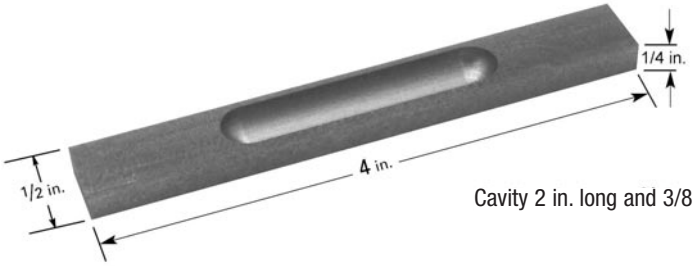
BOAT SOURCE

TYPE	MATERIAL
S17A	.005Ta
S17B	.005Ta
S17A	.010Ta
S17B	.010Ta



BOAT SOURCE

TYPE	MATERIAL
S18	Mo Molybdenum
S18	C Carbon
S18	Ta Tantalum

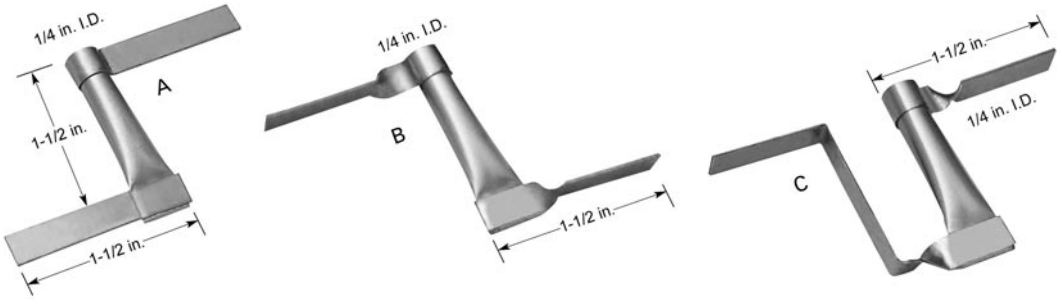


Cavity 2 in. long and 3/8 in. wide

BOAT SOURCE

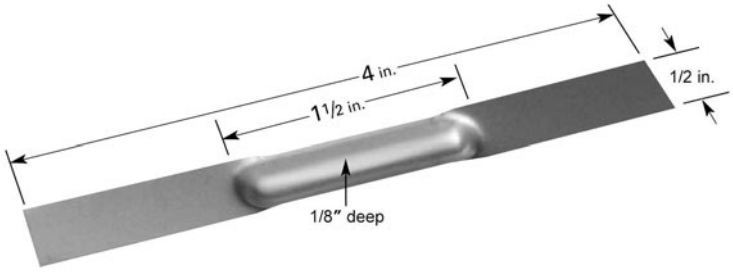
TYPE	MATERIAL
S19A	Ta Tantalum
S19B	Ta Tantalum
S19C	Ta Tantalum

Height – 1-1/2 in.



BOAT SOURCE

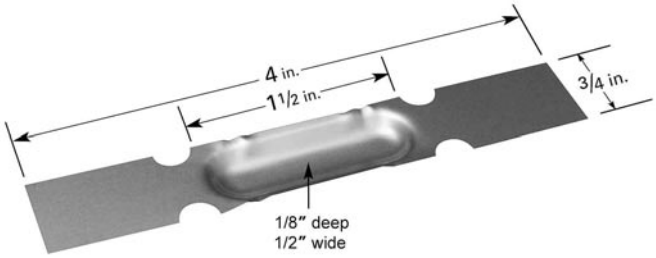
TYPE	MATERIAL	TYPE	MATERIAL
S20A	.005W	S20A	.010Ta
S20A	.010W	S20A	.005Mo
S20A	.015W	S20A	.010Mo
S20A	.005Ta		



BOAT SOURCES

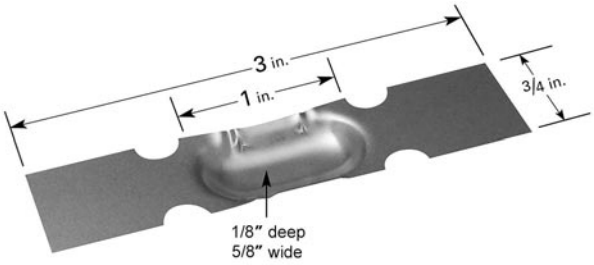
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S21	.005W	S21	.005Mo
S21	.010W	S21	.010Mo
S21	.005Ta		
S21	.010Ta		



BOAT SOURCE

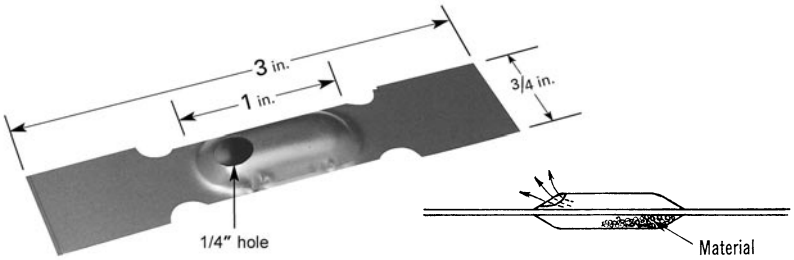
TYPE	MATERIAL	TYPE	MATERIAL
S22	.005W	S22	.005Mo
S22	.010W	S22	.010Mo
S22	.005Ta		
S22	.010Ta		



BOAT SOURCE

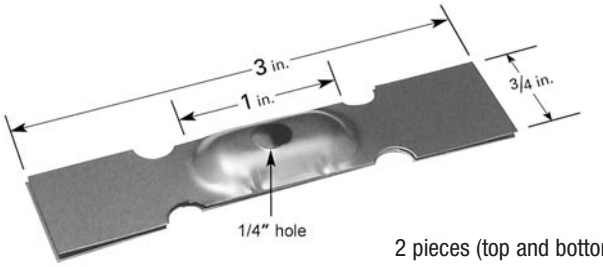
TYPE	MATERIAL
S23	.010W
S23	.010Ta
S23	.010Mo

2 pieces (top and bottom)



BOAT SOURCE

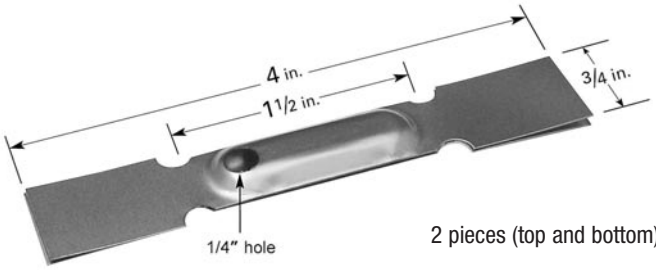
TYPE	MATERIAL
S24	.005W
S24	.010W
S24	.005Ta
S24	.010Ta
S24	.005Mo
S24	.010Mo



2 pieces (top and bottom)

BOAT SOURCE

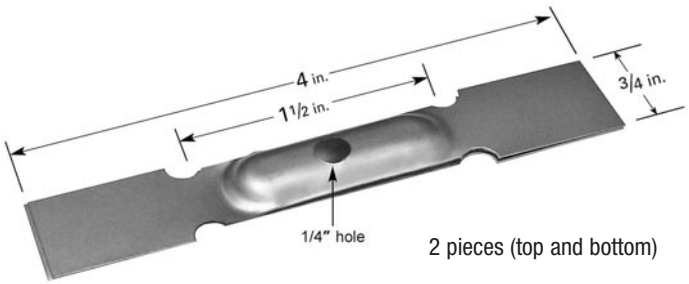
TYPE	MATERIAL
S25	.010W
S25	.010Ta
S25	.010Mo



2 pieces (top and bottom)

BOAT SOURCE

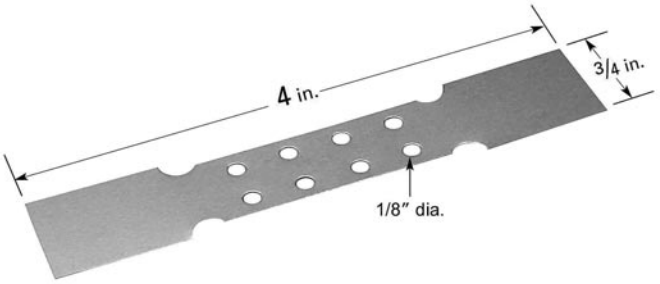
TYPE	MATERIAL
S26	.010W
S26	.010Ta
S26	.010Mo



2 pieces (top and bottom)

BOAT SOURCE

TYPE	MATERIAL
S33	.005W
S33	.005Ta
S33	.005Mo



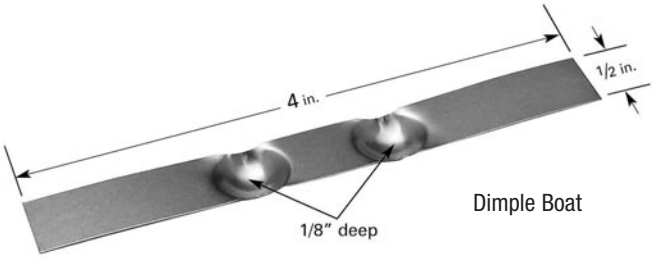
Insert fits between top and bottom of S25 & S26 Covered Boat Sources providing additional baffling, reducing spitting.

BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S27	.005W	S27	.005Mo
S27	.010W	S27	.010Mo
S27	.005Ta		
S27	.010Ta		

BOAT SOURCE

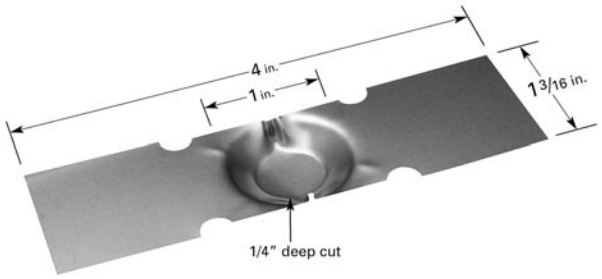
TYPE	MATERIAL	TYPE	MATERIAL
S28	.005W	S28	.005Mo
S28	.010W	S28	.010Mo
S28	.005Ta		
S28	.010Ta		



Dimple Boat

DEEP CUP BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S29	.005W	S29	.015Ta
S29	.010W	S29	.005Mo
S29	.005Ta	S29	.010Mo
S29	.010Ta		

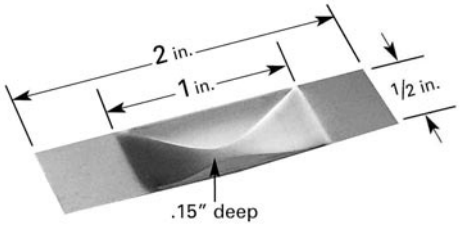


WRAPPED/COVERED BOAT SOURCE

TYPE	MATERIAL
S30A	.005W
S30A	.010W
S30A	.005Ta
S30A	.010Ta

ELONGATED DIMPLE BOAT

TYPE	MATERIAL	TYPE	MATERIAL
S31A	.005W	S31A	.015Ta
S31A	.010W	S31A	.005Mo
S31A	.015W	S31A	.010Mo
S31A	.005Ta	S31A	.015Mo
S31A	.010Ta		

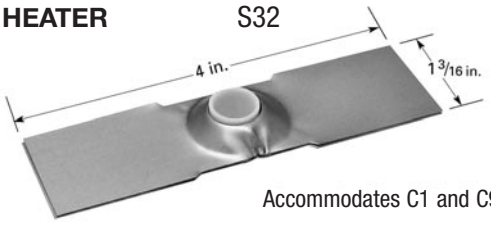


BOAT SOURCES

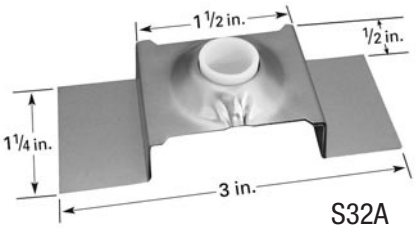
TUNGSTEN CRUCIBLE HEATER

TYPE	MATERIAL
S32	.010W
S32A	.010W

S32



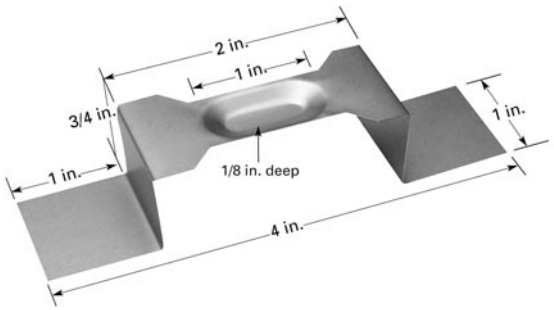
Accommodates C1 and C9 Crucibles



S32A

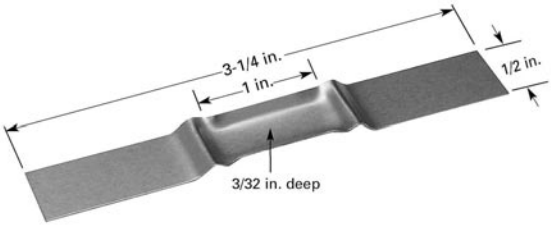
DIMPLE BOAT

TYPE	MATERIAL	TYPE	MATERIAL
S34	.005W	S34	.005Mo
S34	.010W	S34	.010Mo
S34	.005Ta		
S34	.010Ta		



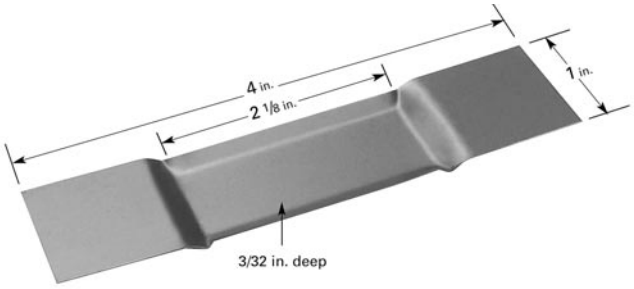
FLAT BOAT

TYPE	MATERIAL	TYPE	MATERIAL
S35	.005W	S35	.005Mo
S35	.010W	S35	.010Mo
S35	.005Ta		
S35	.010Ta		



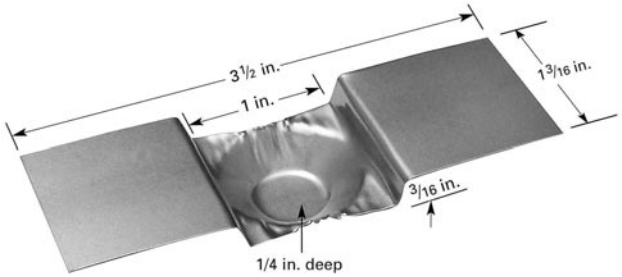
BOAT SOURCE

TYPE	MATERIAL
S36	.010W
S36	.010Ta
S36	.015Ta
S36	.010Mo



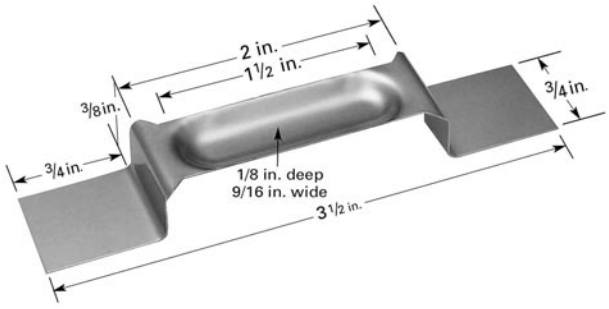
BOAT SOURCE

TYPE	MATERIAL
S37	.005Ta
S37	.010Ta
S37	.005Mo
S37	.010Mo



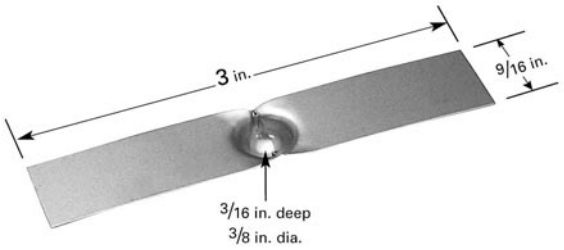
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S38	.005W	S38	.005Mo
S38	.010W	S38	.010Mo
S38	.005Ta		
S38	.010Ta		



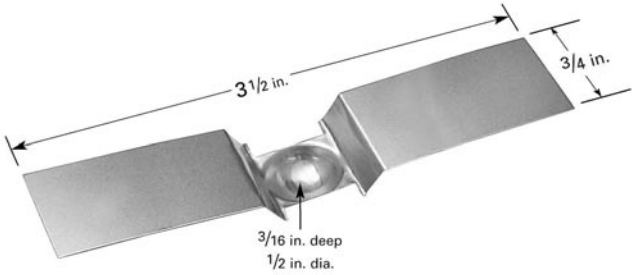
BOAT SOURCE

TYPE	MATERIAL
S39	.005Ta
S39	.010Ta
S39	.005Mo
S39	.010Mo



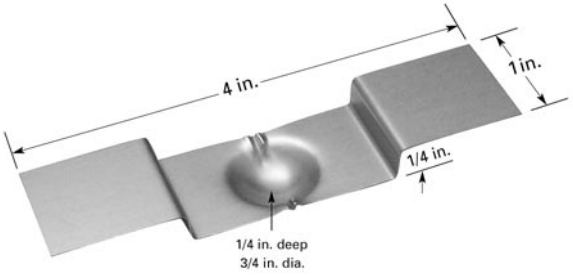
BOAT SOURCE

TYPE	MATERIAL
S40	.005W
S40	.005Ta
S40	.010Ta
S40	.005Mo
S40	.010Mo



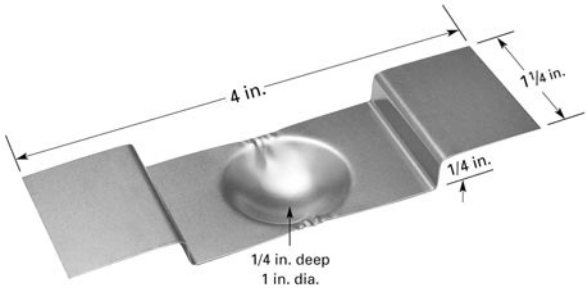
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S42	.005W	S42	.015Ta
S42	.010W	S42	.010Mo
S42	.015W	S42	.015Mo
S42	.010Ta		



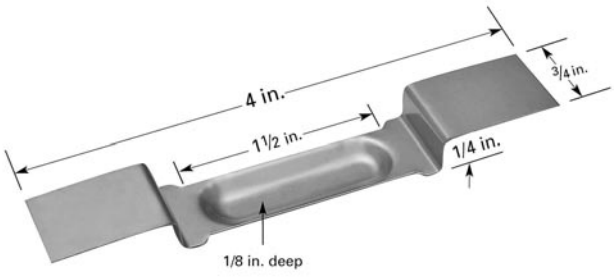
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S43	.005W	S43	.015Ta
S43	.010W	S43	.010Mo
S43	.015W	S43	.015Mo
S43	.010Ta		



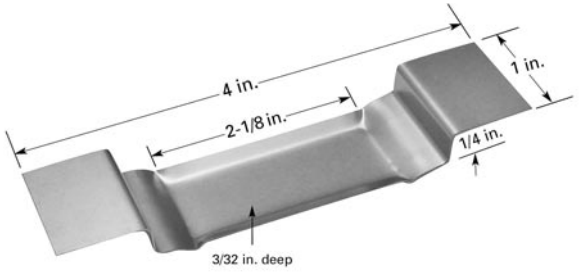
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S44	.005W	S44	.015Ta
S44	.010W	S44	.005Mo
S44	.015W	S44	.010Mo
S44	.005Ta	S44	.015Mo
S44	.010Ta		



BOAT SOURCE

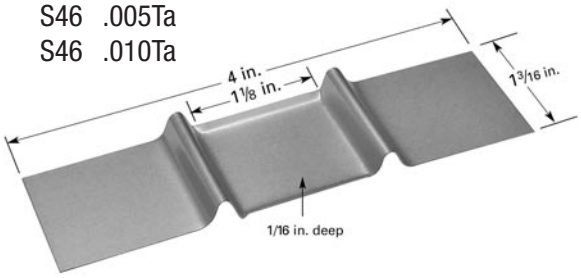
TYPE	MATERIAL	TYPE	MATERIAL
S45	.005W	S45	.015Ta
S45	.010W	S45	.005Mo
S45	.015W	S45	.010Mo
S45	.005Ta	S45	.015Mo
S45	.010Ta		



BOAT SOURCES

BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S46	.005W	S46	.005Mo
S46	.010W	S46	.010Mo
S46	.005Ta		
S46	.010Ta		

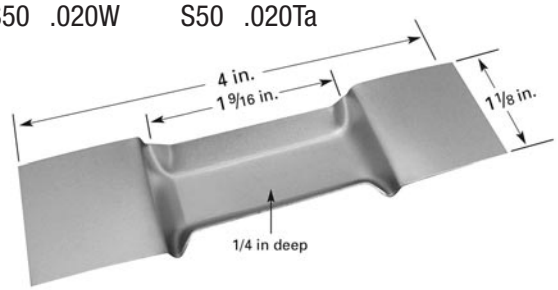


BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S48	.005W	S48	.010Ta
S48	.010W	S48	.010Mo

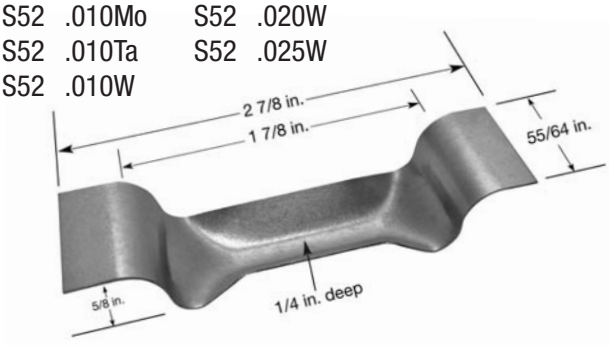
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL	TYPE	MATERIAL
S50	.010W	S50	.010Ta	S50	.010Mo
S50	.015W	S50	.015Ta	S50	.015Mo
S50	.020W	S50	.020Ta		



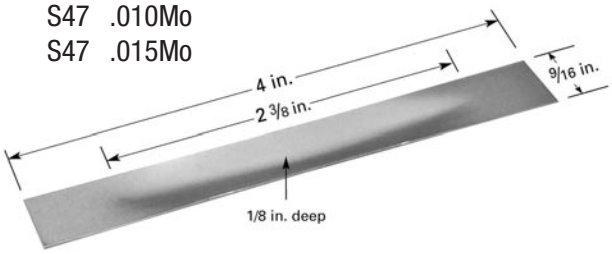
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S52	.010Mo	S52	.020W
S52	.010Ta	S52	.025W
S52	.010W		



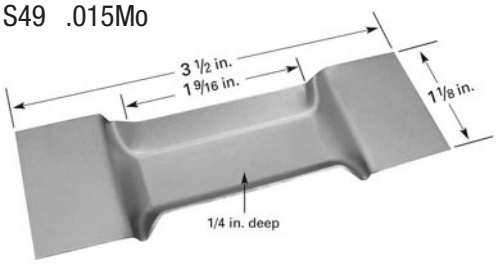
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S47	.010W	S47	.020Ta
S47	.015W	S47	.010Mo
S47	.020W	S47	.015Mo
S47	.010Ta		
S47	.015Ta		



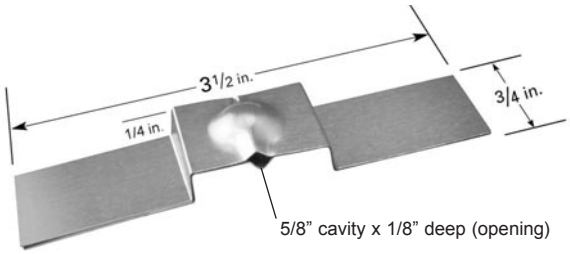
BOAT SOURCE

TYPE	MATERIAL	TYPE	MATERIAL
S49	.010W	S49	.020Ta
S49	.015W	S49	.010Mo
S49	.020W	S49	.015Mo
S49	.010Ta		
S49	.015Ta		



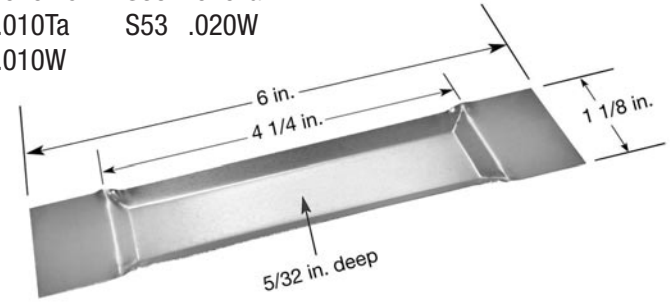
BOAT SOURCE

TYPE	MATERIAL
S51	.010W
S51	.010Ta
S51	.010Mo

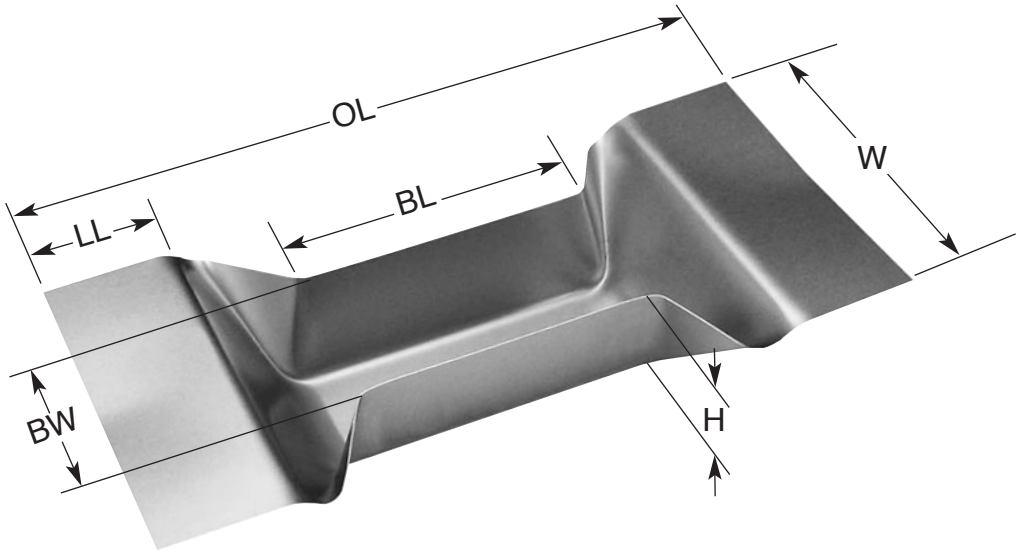


BOAT SOURCE

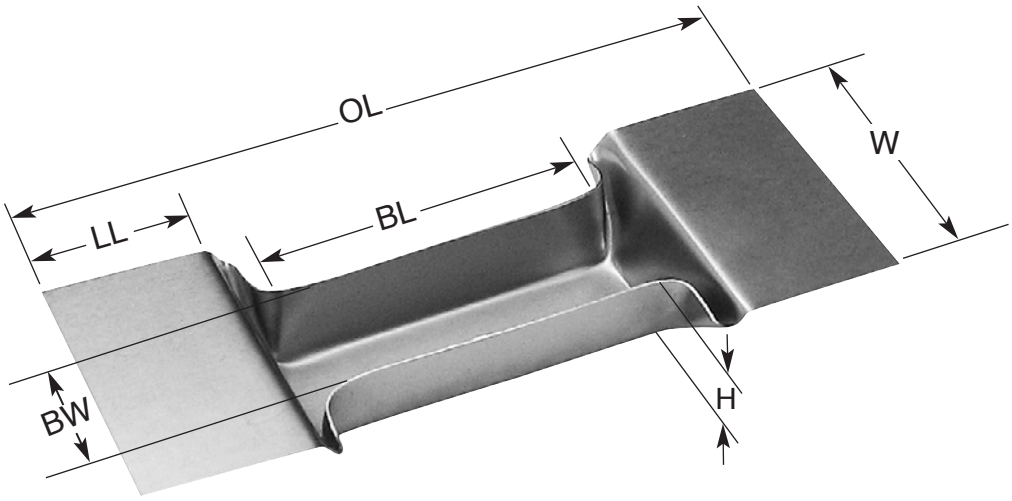
TYPE	MATERIAL	TYPE	MATERIAL
S53	.010Mo	S53	.020Ta
S53	.010Ta	S53	.020W
S53	.010W		



FOLDED BOATS



BASIC PART NUMBER	BL	BW	H	OL	W	LL	VOL	MATERIAL
FB1	1.88	.75	.73	4.5	2.13	.75	17CC	AVAILABLE IN .005, .010, & .015 Mo & Ta TUNGSTEN ON REQUEST
FB2	1.88	1.3	.47	4.34	2.13	.75	19CC	
FB3	3.75	1.0	.50	6.16	2.13	.82	31CC	
FB4	3.75	.75	.75	6.16	2.13	.75	35CC	
AVAILABLE ON REQUEST: AL_2O_3 COATED INSIDE OR AL_2O_3 BARRIER TYPE								



BASIC PART NUMBER	BL	BW	H	OL	W	LL	VOL	MATERIAL
FB10	.66	.45	.43	1.42	1.25	.38	2CC	AVAILABLE IN .005, .010, & .015 Mo & Ta TUNGSTEN ON REQUEST
FB11	1.25	.38	.31	2.56	1.00	.56	3CC	
FB12	1.56	.50	.31	2.94	1.13	.69	4CC	
AVAILABLE ON REQUEST: AL_2O_3 COATED INSIDE OR AL_2O_3 BARRIER TYPE								

RD MATHIS COMPANY

ALUMINA

Alumina (Al_2O_3) coated evaporation sources have been developed to replace alumina crucibles for some specific applications. The advantages of this type of source is good heat transfer and the inertness of alumina with most metals. Also, the evaporant does not wet the alumina, resulting in no resistant change of the boat when the evaporant melts. Due to the non wetting characteristics of alumina, the evaporant forms a sphere when melted resulting in a point source.

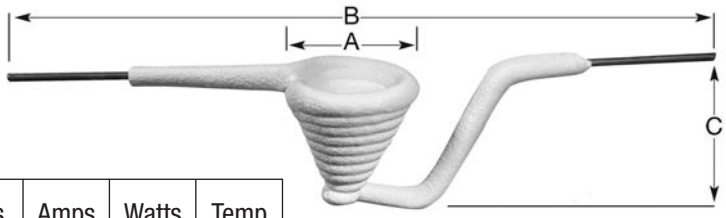
This type of source will give long life compared to the non protected sources. Coated sources will require from thirty to fifty percent more power to effect an evaporation due to the difference in heat conduction. The alumina is semi-conductor grade and is applied to the boat by a plasma spray technique. Temperatures of 1850˚C should be avoided and when an evaporation is effected the power should be reduced slightly to avoid over heating.

ALUMINA COATED EVAPORATION SOURCES

RD MATHIS COMPANY

EVAPORATION SOURCE

Alumina Coated Tungsten Baskets



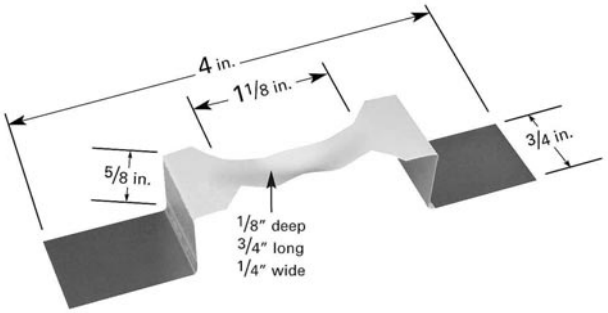
Part Number	Wire Dia.	"A" Top I.D.	Inside Depth	"B" OAL	"C" Height	Volts	Amps	Watts	Temp
RDM-WBAO-1	.020"	.150"	.225"	4"	.375"	5.70	11	63	1475˚C
RDM-WBAO-2	.040"	.375"	.350"	4"	.500"	6.20	40	248	1475˚C
RDM-WBAO-3	.040"	.420"	.425"	4"	.575"	6.90	39	272	1475˚C
RDM-WBAO-4	.040"	.790"	.725"	4"	.875"	13.00	33	429	1475˚C
RDM-WBAO-5	.050"	.500"	.775"	4"	.925"	7.00	50	350	1475˚C
RDM-WBAO-6	.050"	.900"	.975"	4"	1.125"	15.80	49	768	1475˚C

Dash Numbers are in order of size (height)

EVAPORATION SOURCE

S1-AO-MO
S1-AO-W

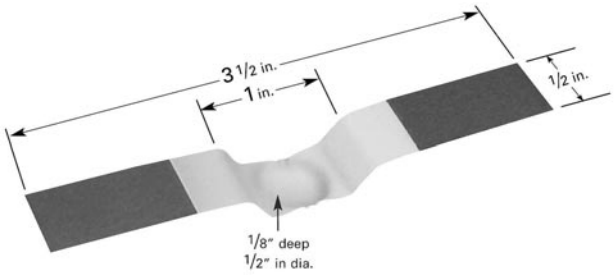
0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat



EVAPORATION SOURCE

S2B-AO-MO
S2B-AO-W

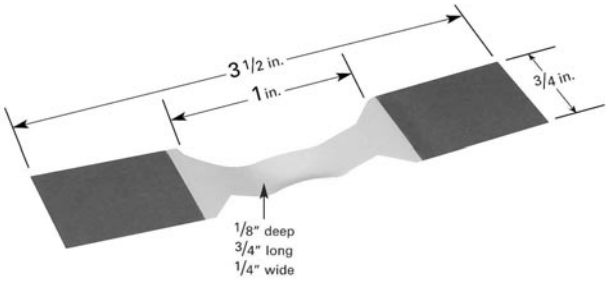
0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat



EVAPORATION SOURCE

S3-AO-MO
S3-AO-W

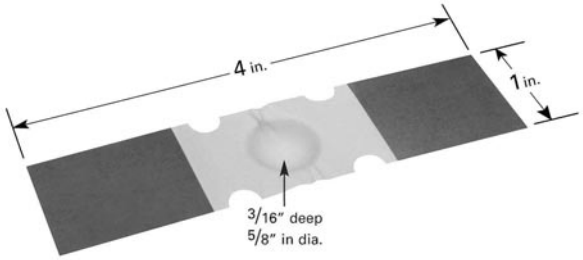
0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat



EVAPORATION SOURCE

S8C-AO-MO
S8C-AO-W

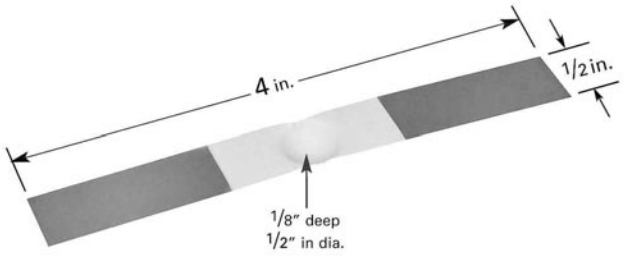
0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat



EVAPORATION SOURCE

S9A-AO-MO
S9A-AO-W

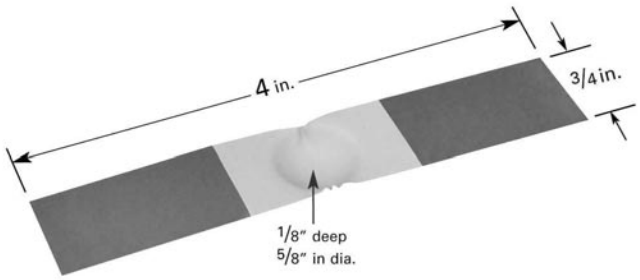
0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat



EVAPORATION SOURCE

S9B-AO-MO
S9B-AO-W

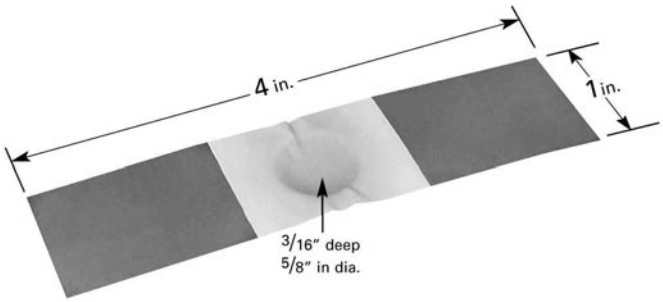
0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat



EVAPORATION SOURCE

S9C-AO-MO
S9C-AO-W

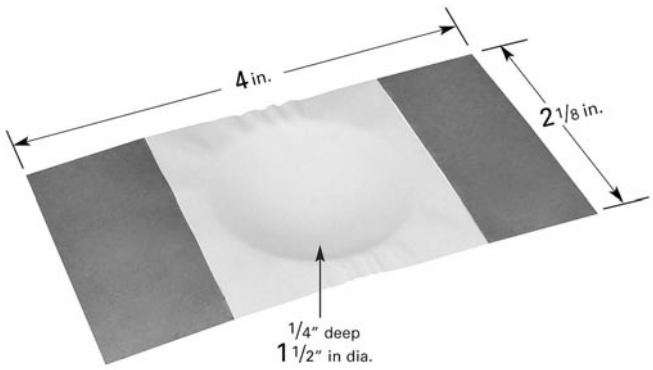
0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat



EVAPORATION SOURCE

S9F-AO-MO

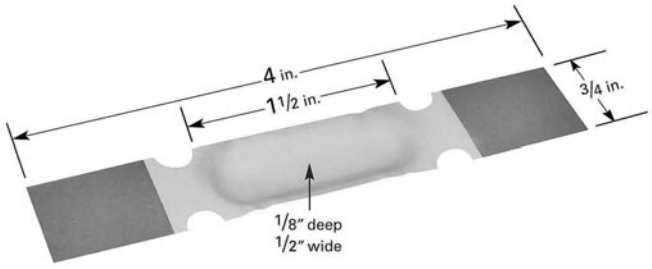
0.005 Al_2O_3 Coating
0.010 Molybdenum Boat



EVAPORATION SOURCE

S21-AO-MO
S21-AO-W

0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat



ALUMINA COATED EVAPORATION SOURCES

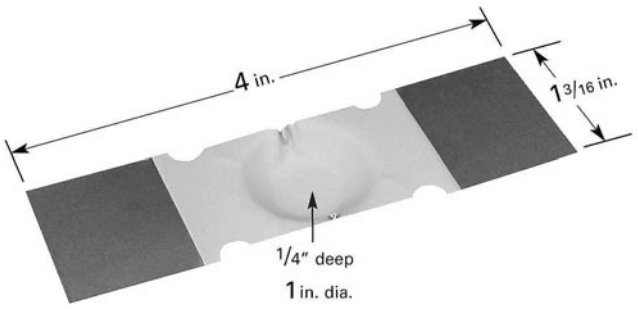
RD MATHIS COMPANY

EVAPORATION SOURCE

S29-AO-MO

S29-AO-W

0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat

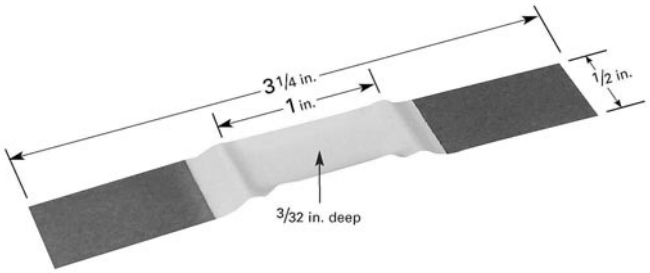


EVAPORATION SOURCE

S35A-AO-MO

S35A-AO-W

0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat

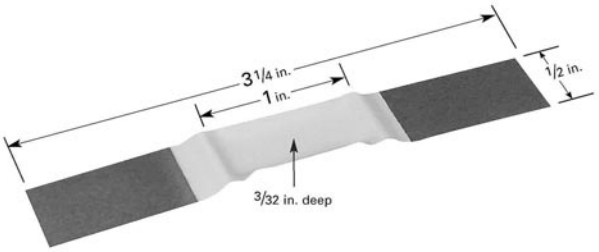


EVAPORATION SOURCE

S36-AO-MO

S36-AO-W

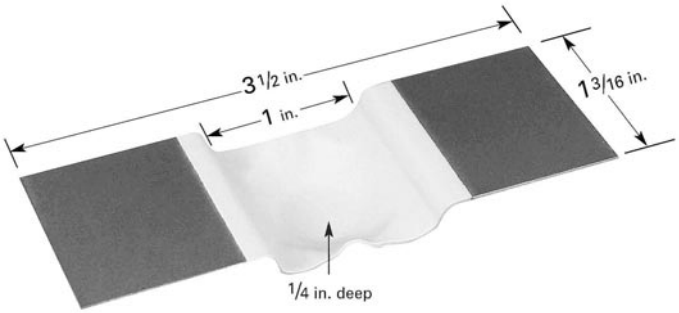
0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat



EVAPORATION SOURCE

S37-AO-MO

0.005 Al_2O_3 Coating
0.010 Molybdenum Boat

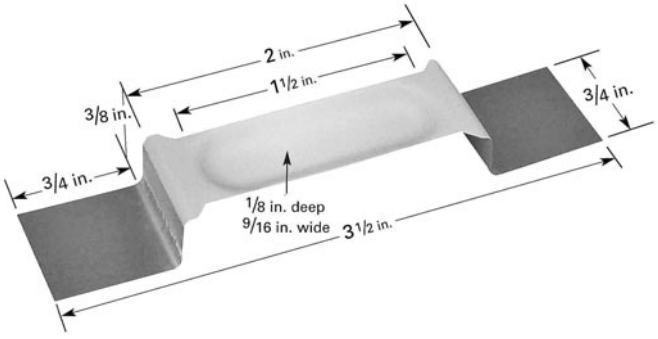


EVAPORATION SOURCE

S38A-AO-MO

S38A-AO-W

0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat

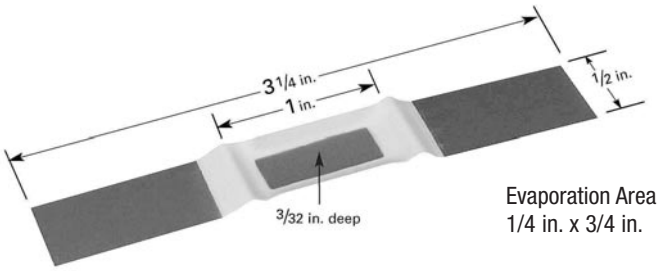


TUNGSTEN & MOLYBDENUM BOATS WITH ALUMINA BARRIERS

This type of source has been designed to give the benefit of a refractory metal boat and a ceramic barrier. The exposed metal area in the bottom of the boat allows the evaporant to be in good thermal contact with the source. The alumina barrier will inhibit the evaporant from creeping toward the heat sink or from wetting the entire boat.

EVAPORATION SOURCE

S35B-AO-MO
S35B-AO-W

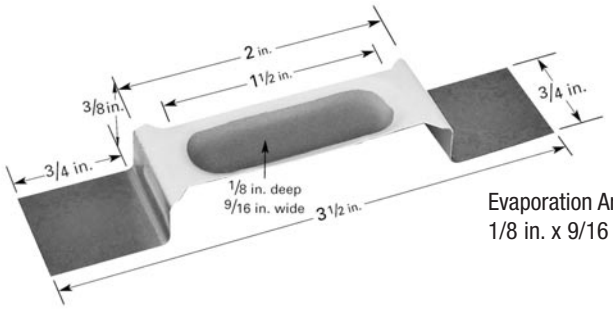


Evaporation Area
1/4 in. x 3/4 in.

0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat

EVAPORATION SOURCE

S38B-AO-MO
S38B-AO-W

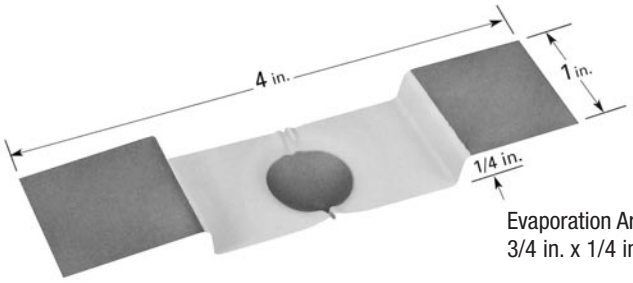


Evaporation Area
1/8 in. x 9/16 in.

0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat

EVAPORATION SOURCE

S42B-AO-MO
S42B-AO-W

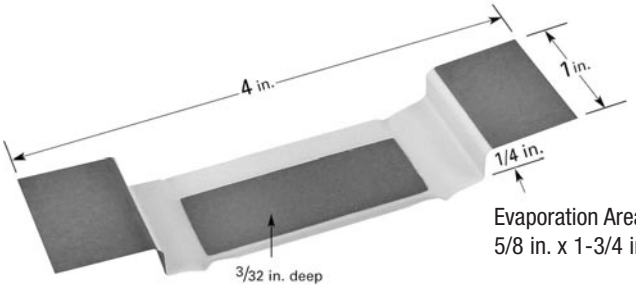


Evaporation Area
3/4 in. x 1/4 in.

0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat

EVAPORATION SOURCE

S45B-AO-MO
S45B-AO-W

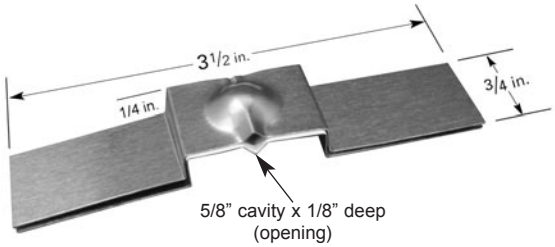


Evaporation Area
5/8 in. x 1-3/4 in.

0.005 Al_2O_3 Coating
0.010 Molybdenum Boat
0.010 Tungsten Boat

EVAPORATION SOURCE

S51-AO-MO



0.005 Al_2O_3 Coating
0.010 Molybdenum Boat

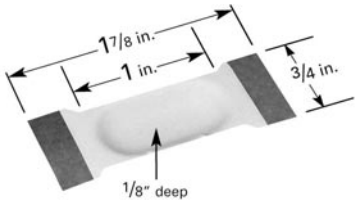
ALUMINA COATED EVAPORATION SOURCES

RD MATHIS COMPANY

EVAPORATION SOURCE

ME3-AO

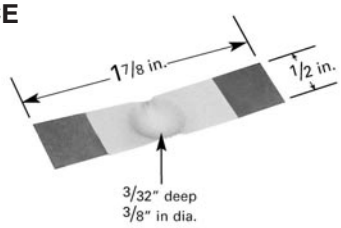
Al_2O_3 Coating
0.005 Mo Boat



EVAPORATION SOURCE

ME4-AO

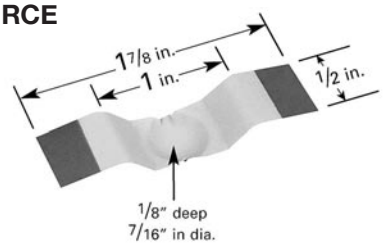
Al_2O_3 Coating
0.005 Mo Boat



EVAPORATION SOURCE

ME6B-AO

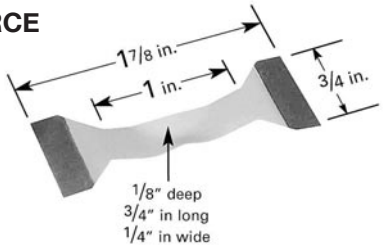
Al_2O_3 Coating
0.005 Mo Boat



EVAPORATION SOURCE

ME9-AO

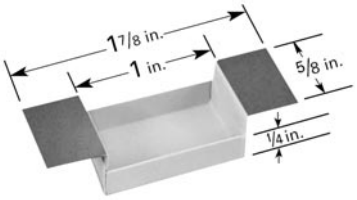
Al_2O_3 Coating
0.005 Mo Boat



EVAPORATION SOURCE

ME22-AO

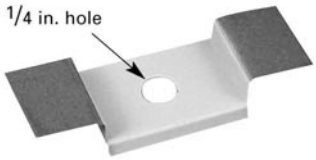
Al_2O_3 Coating
0.010 Ta Boat



EVAPORATION SOURCE

ME22A-AO

Al_2O_3 Coating
0.005 Ta Cover

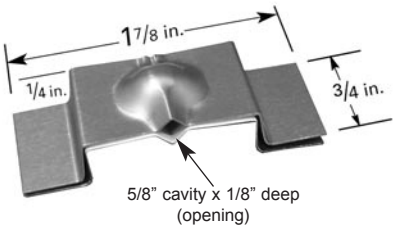


Both under and top surfaces coated

EVAPORATION SOURCE

ME25-AO-MO

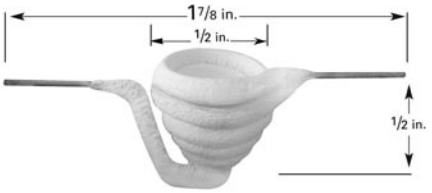
Al_2O_3 Coating
0.005 Mo Boat



EVAPORATION SOURCE

ME17-.030W-AO

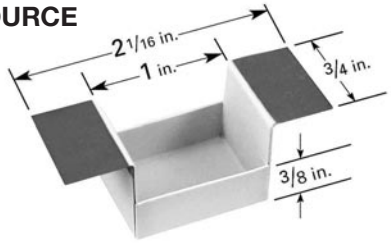
.030W



EVAPORATION SOURCE

SB3-AO

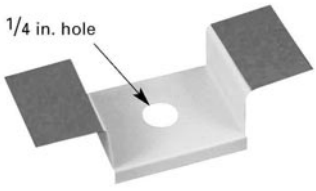
Al_2O_3 Coating
0.010 Ta Boat



EVAPORATION SOURCE

SB3A-AO

Al_2O_3 Coating
0.005 Ta Cover

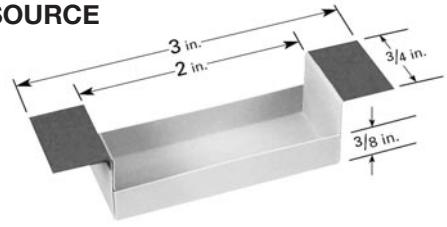


Both under and top surfaces coated

EVAPORATION SOURCE

SB5-AO

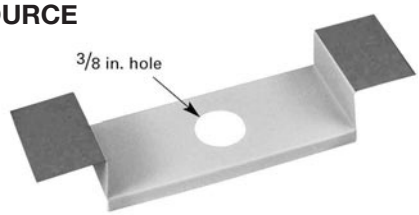
Al_2O_3 Coating
0.010 Ta Boat



EVAPORATION SOURCE

SB5A-AO

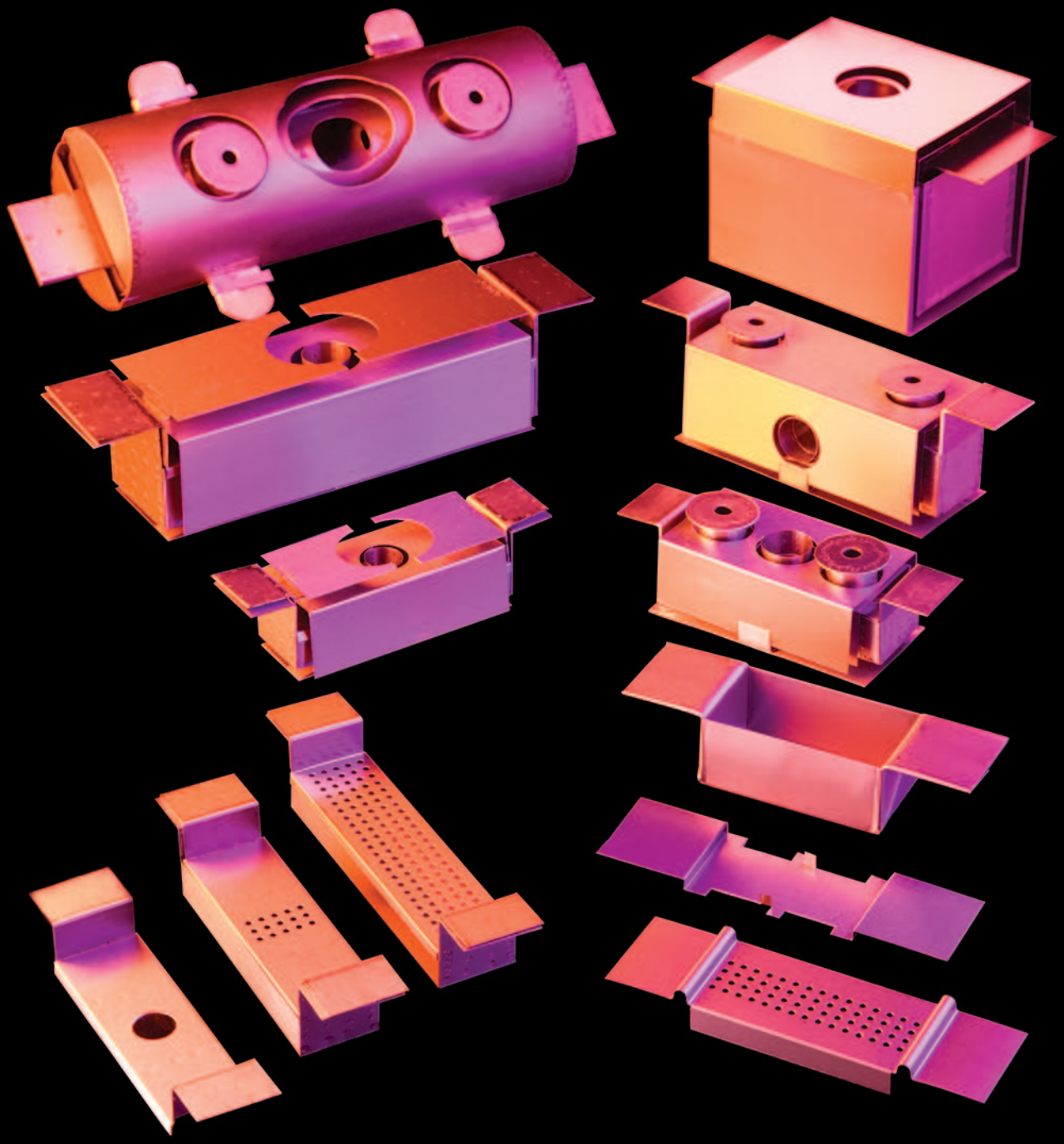
Al_2O_3 Coating
0.005 Ta Cover



Both under and top surfaces coated

RD MATHIS COMPANY

BOX SOURCES

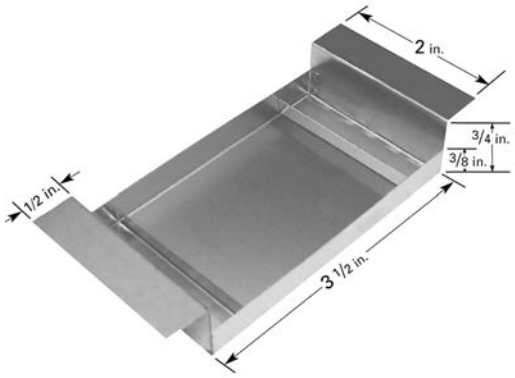


This section includes Special Tantalum Boats, Folded Baffled Box Sources and Shielded Baffled Box Sources. Special tantalum boats have welded corners and offer the benefits of long life along with covered evaporation areas to help reduce spitting and contain volatile materials. These are available in a variety of sizes and offer baffling in some cases. Custom sizes are easily made and available on request. Also shown are Folded Baffled Box sources, available in Molybdenum and Tantalum, and offer exceptional baffling, without heat shielding. These are available in varying capacities as standard items, as well as custom sizes on request. The last section includes Shielded Baffled Box Sources and High Volume Sources that are ideal for SiO, ZnS and other subliming materials.

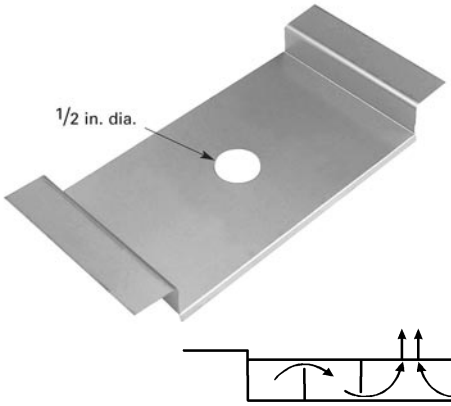
SPECIAL TANTALUM BOATS

RD MATHIS COMPANY

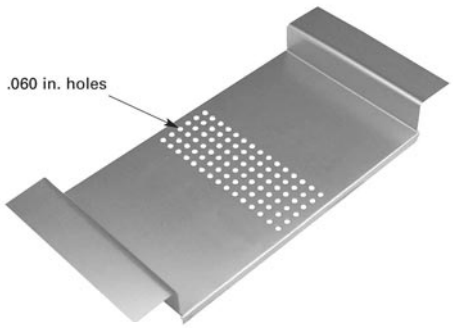
SB-1
(0.010 Ta)
Baffled

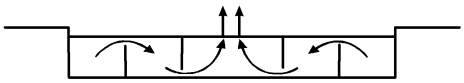


SB-1A Cover
(0.005 Ta)
Baffled

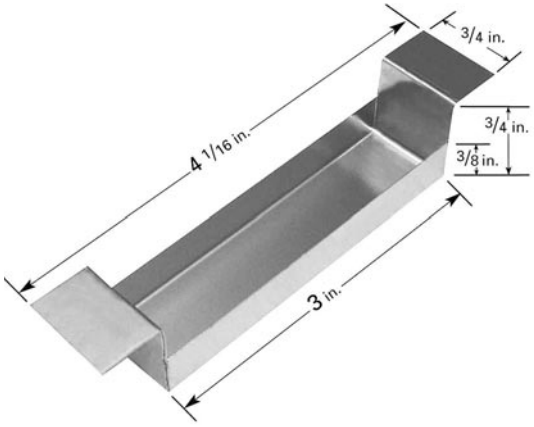


SB-1B Cover
(0.005 Ta)
Baffled

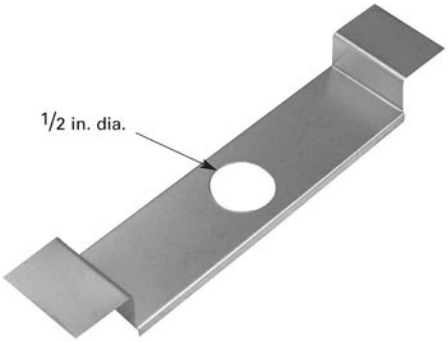




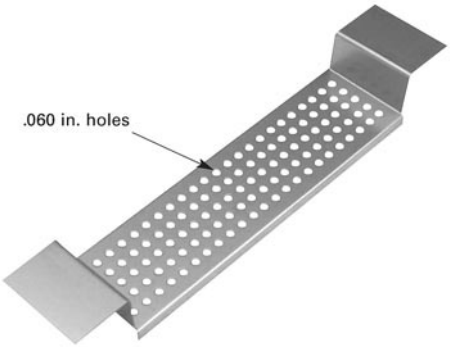
SB-2
(0.010 Ta)



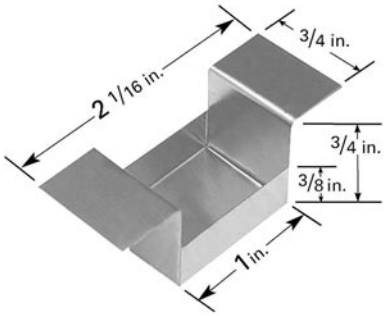
SB-2A Cover
(0.005 Ta)



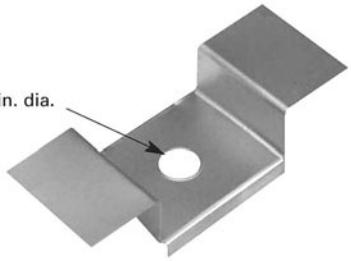
SB-2B Cover
(0.005 Ta)



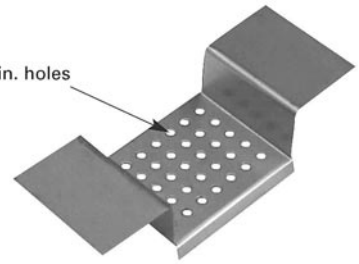
SB-3
(0.010 Ta)



SB-3A Cover
(0.005 Ta)

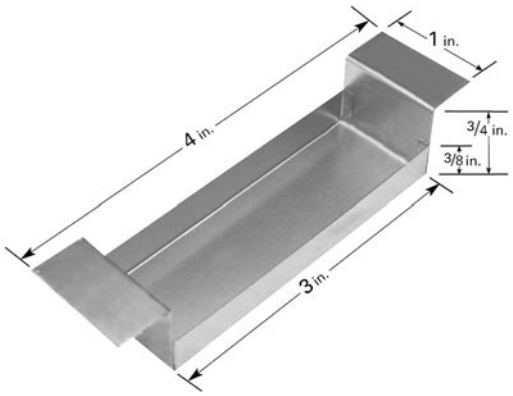


SB-3B Cover
(0.005 Ta)

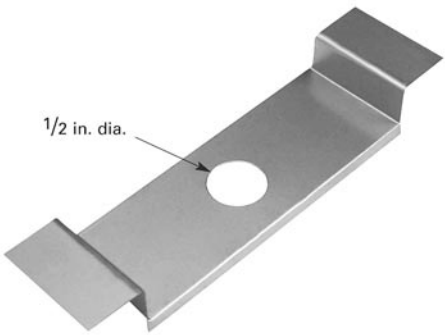


BOX SOURCES

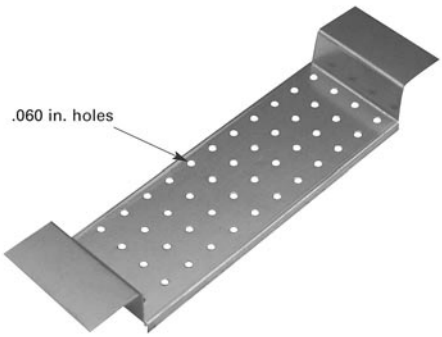
SB-4
(0.010 Ta)



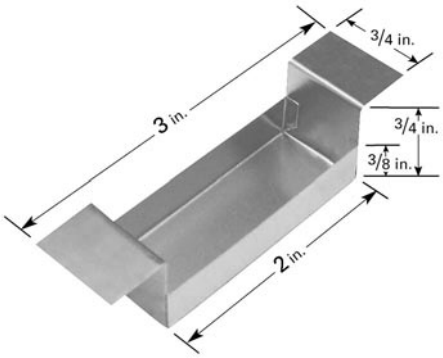
SB-4A Cover
(0.005 Ta)



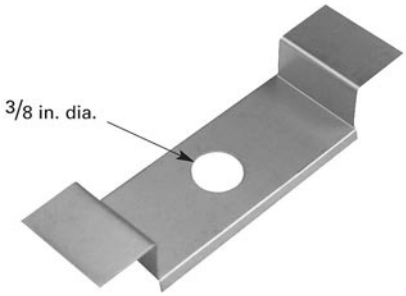
SB-4B Cover
(0.005 Ta)



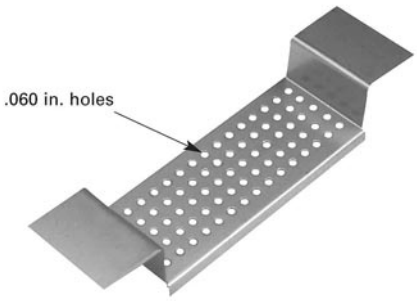
SB-5
(0.010 Ta)



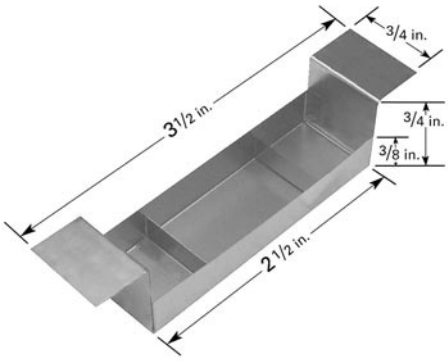
SB-5A Cover
(0.005 Ta)



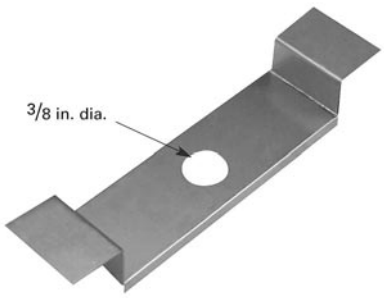
SB-5B Cover
(0.005 Ta)



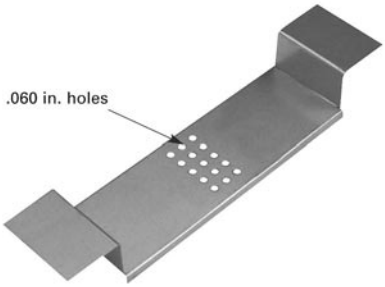
SB-6
(0.005 Ta)
Baffled

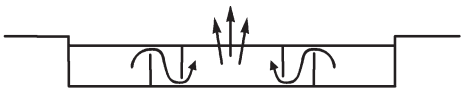


SB-6A Cover
(0.005 Ta)
Baffled Cover



SB-6B Cover
(0.005 Ta)
Baffled Cover



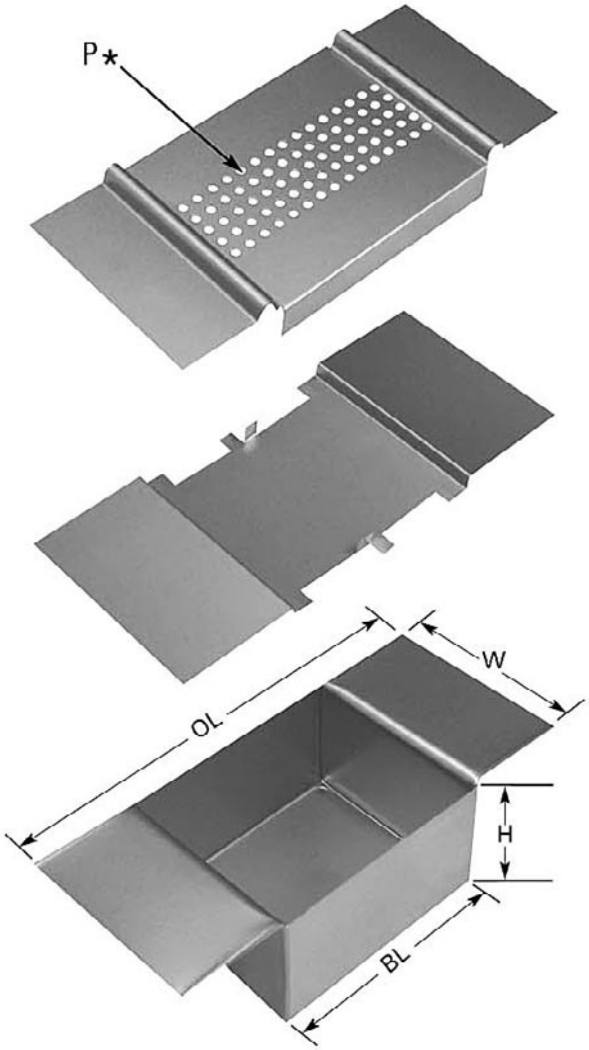


FOLDED BAFFLED BOX SOURCE

COVER C

BAFFLE B

FOLDED BOX A



STANDARD MATERIALS

STANDARD	Al_2O_3 COATED
.005 Mo OR Ta	.005 OR .010 Mo OR Ta
.005 Mo OR Ta	NORMALLY NOT USED
.005 OR .010 Mo OT Ta	.010 Mo OR Ta

BASIC PART NUMBER	BL	W	H	OL	P	VOL
SB-7	1.75	1	.75	3.5	0.06 (60 HOLES) 4 X 15 ROWS	21CC
SB-8	1.75	1.5	1	3.5	0.06 (75 HOLES) 5 X 15 ROWS	43CC
SB-9	3.0	1.38	.75	4.75	0.06 (115 HOLES) 5 X 23 ROWS	50CC
SB-10	2.75	2	1.25	4	0.12 (65 HOLES) 5 X 13 ROWS	112CC

* = SINGLE HOLE SIZES AVAILABLE ON REQUEST

DIMENSIONS IN INCHES

EXAMPLE: SB-10-C-.010 Ta-AO, MODIFIED, 3/4 DIA. HOLE IN CENTER

BASIC PART NUMBER

PART (COVER, BAFFLE, BOX)

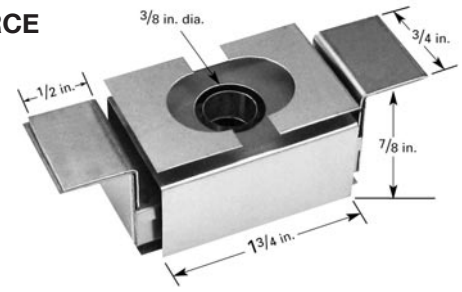
MATERIAL THICKNESS & TYPE

USE ONLY FOR Al_2O_3 COATED PARTS

LIST ANY MODIFICATIONS

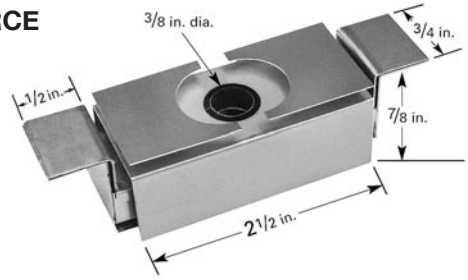
BAFFLED BOX SILICON MONOXIDE SOURCE

3.5 GRAM



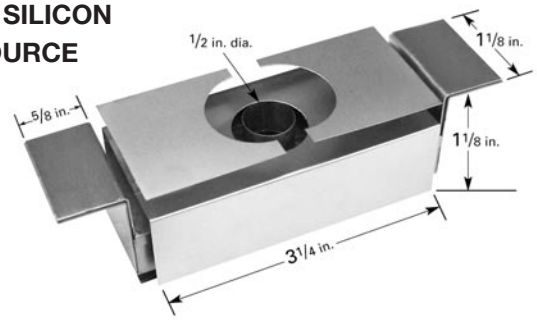
BAFFLED BOX SILICON MONOXIDE SOURCE

5 GRAM



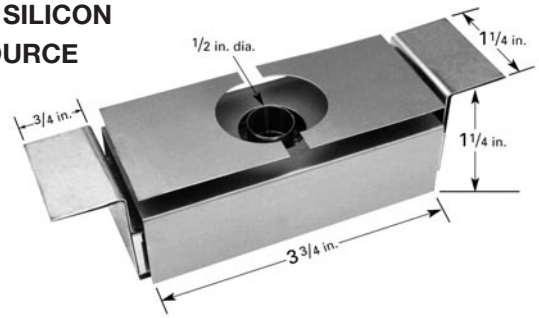
BAFFLED BOX SILICON MONOXIDE SOURCE

10 GRAM



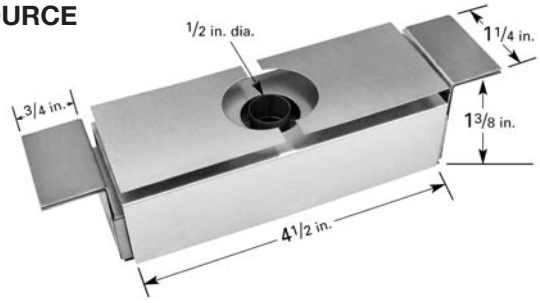
BAFFLED BOX SILICON MONOXIDE SOURCE

20 GRAM



BAFFLED BOX SILICON MONOXIDE SOURCE

40 GRAM

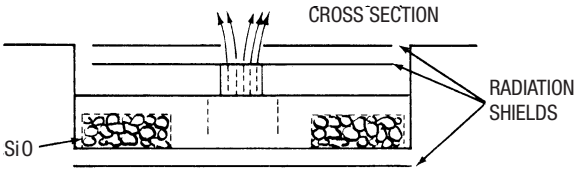


"BAFFLED BOX" SILICON MONOXIDE SOURCES

The R.D. Mathis Company, "Baffled Box" Silicon Monoxide Source has proven to be an extremely successful method of depositing Silicon Monoxide.

Source material is positioned in the boat in two separate cavities, when heated it follows an indirect path through a series of baffles and then out the vertical chimney. The substrate cannot see the bulk source material at any time, this, essentially, eliminates any chance of spitting and streaming, which causes pinholes.

A paper describing the techniques of Silicon Monoxide deposition and the results of capacitor and resistor manufacturing utilizing the "Baffled Box" Source will be sent upon request...ask for "Silicon Monoxide Evaporation with "Multi-baffled Box Source" by Earl Olson of the Halex Corp. and R.D. Mathis.



SOURCE	VERTICAL OR HORIZONTAL	INVERTED
3.5 Gram	SM-8	SM-9
5 Gram	SM-10	SM-11
10 Gram	SM-12	SM-13
20 Gram	SM-14	SM-15
40 Gram	SM-16	SM-17

Additional sizes are available upon request.

NEW SILICON MONOXIDE SOURCES SO SERIES

This new silicon monoxide source design is an improved model of our very sucessful SM series. It incorporates the same type of baffling and shielding as the SM sources, insuring an indirect path from source material to substrate.

The new SO Series silicon monoxide source offers the following features: Longer life, eliminates leakage, loading without removal from system and “completely sealed” one unit construction.

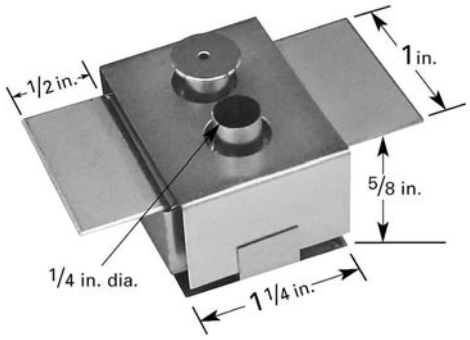
SILICON MONOXIDE SOURCE SO SERIES

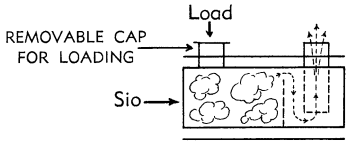
SO-20

1.5 GRAM

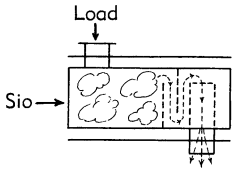
333 Amps
286 Watts

S0-20 Up Evaporation
S0-21 Down Evaporation





SO - 20 (UP EVAPORATION)



SO - 21 (DOWN EVAPORATION)

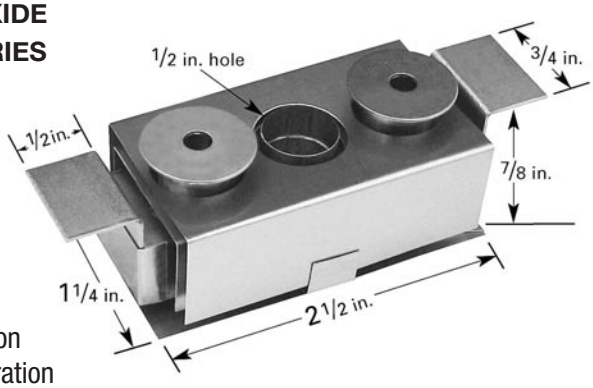
SILICON MONOXIDE SOURCE SO SERIES

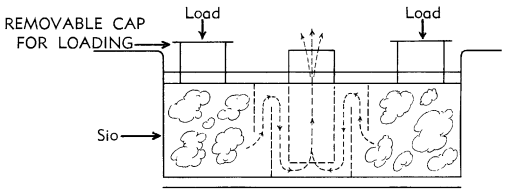
SO-10

6.5 GRAM

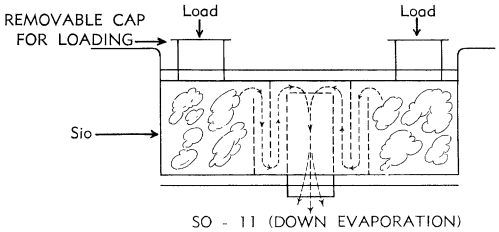
226 Amps
282 Watts

S0-10 Up Evaporation
S0-11 Down Evaporation





SO - 10 (UP EVAPORATION)



SO - 11 (DOWN EVAPORATION)

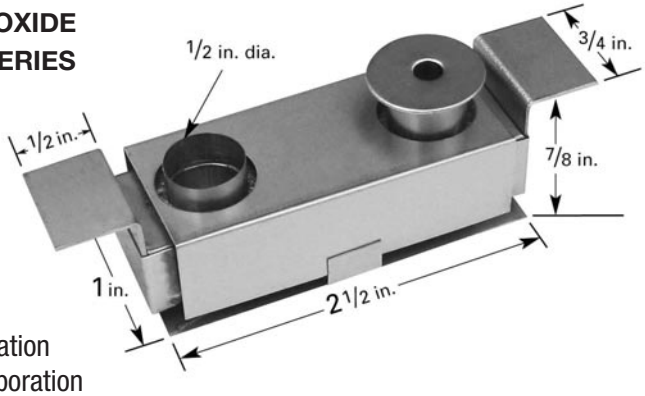
SILICON MONOXIDE SOURCE SO SERIES

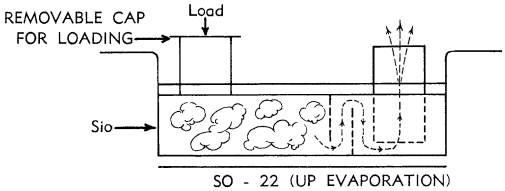
SO-22

6.5 GRAM

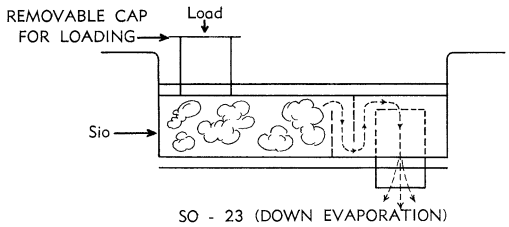
246 Amps
330 Watts

S0-22 Up Evaporation
S0-23 Down Evaporation





SO - 22 (UP EVAPORATION)



SO - 23 (DOWN EVAPORATION)

NEW SILICON MONOXIDE SOURCES SO SERIES

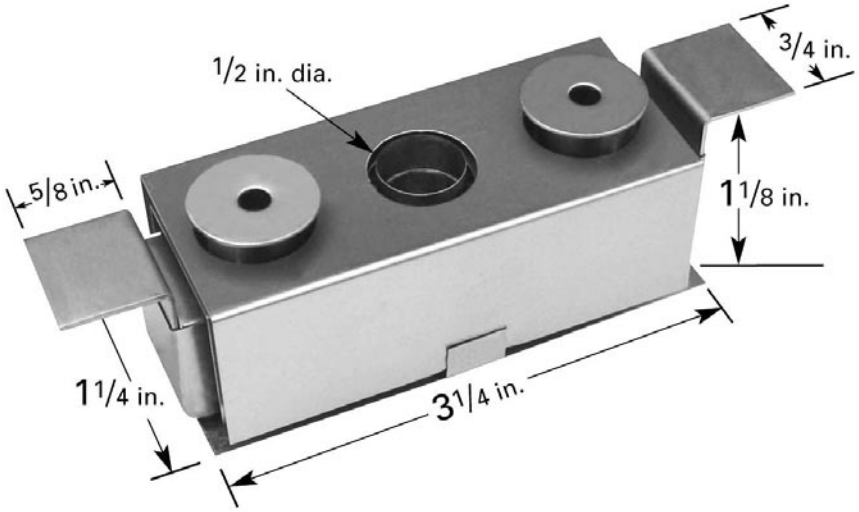
SILICON MONOXIDE SOURCE SO SERIES

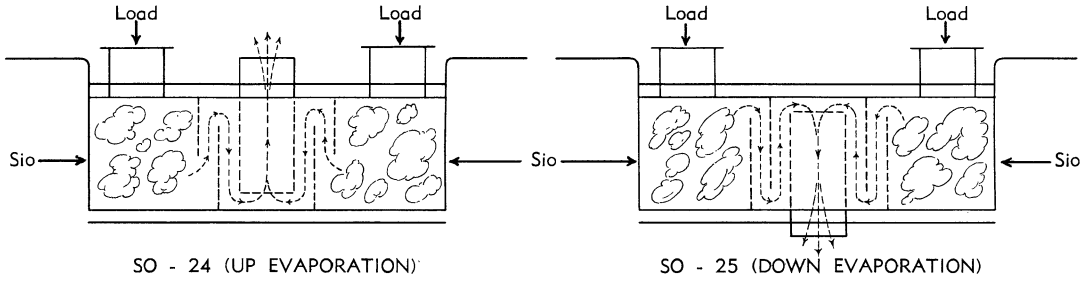
SO-24

13 GRAM

264 Amps
441 Watts

S0-24 Up Evaporation
S0-25 Down Evaporation





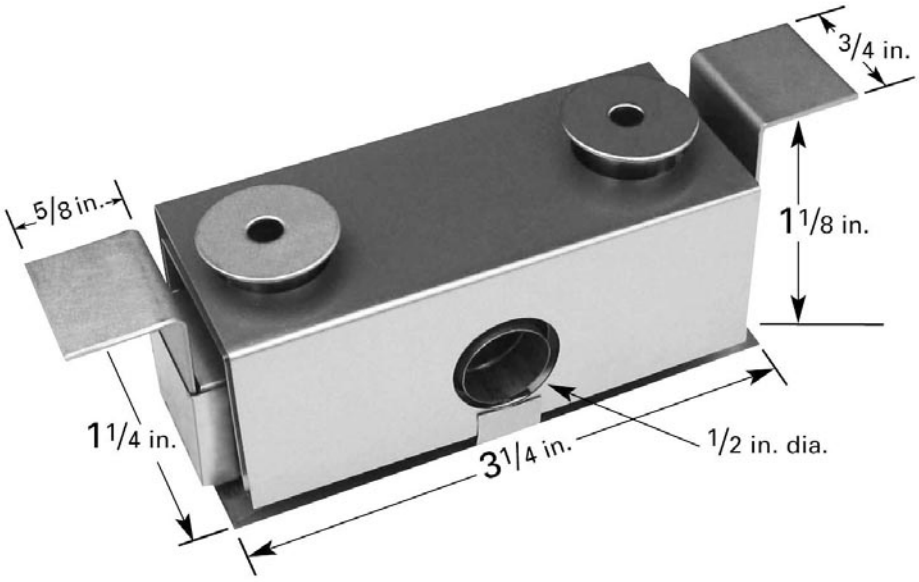
SILICON MONOXIDE SOURCE SO SERIES

SO-26

13 GRAM

Horizontal Source

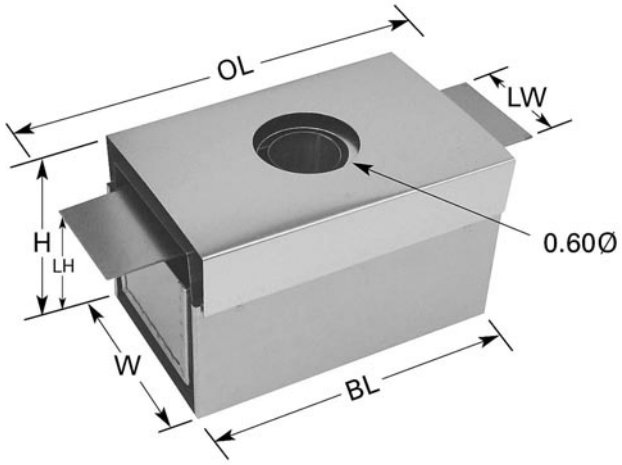
271 Amps
439 Watts



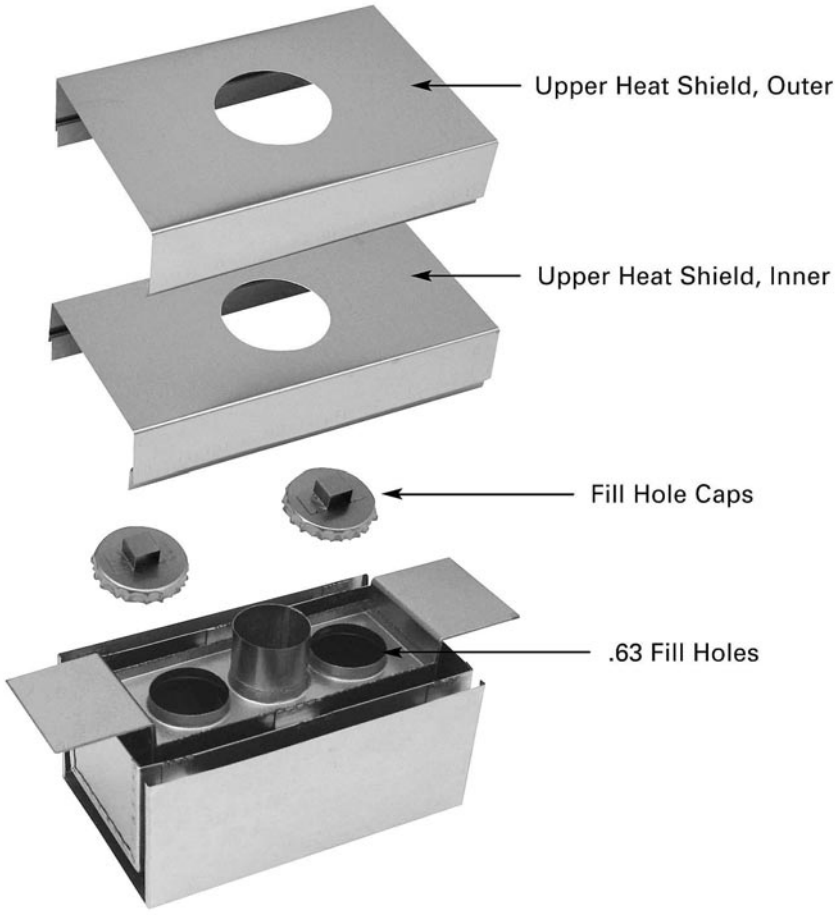
A technical bulletin is available upon request – “Silicon Monoxide – Properties and Evaporation Techniques” by R.D. Mathis

(Larger SO Series Sources available on request)

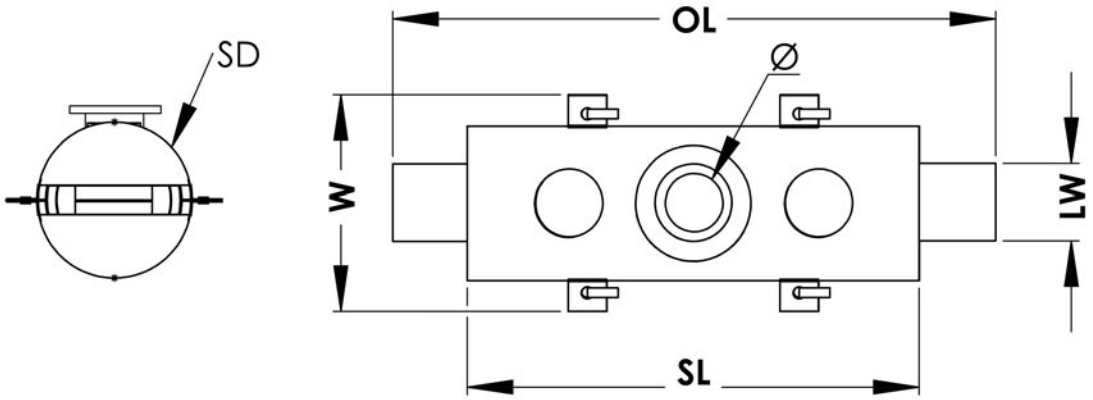
DOUBLE SHIELDED SiO / ZnS EVAPORATION SOURCE



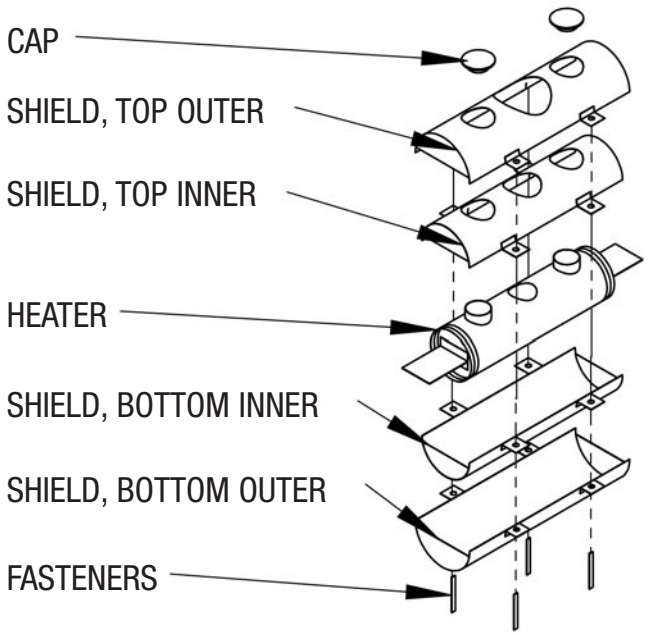
BASIC PART NUMBER	LH	BL	W	H	OL	LW	VOL	MATERIAL
SO-32	1 1/4”	2.88	1.80	1.79	4.0	1.0	20 cc	Ta – Heater & Fill Hole Caps
SO-34	2”	2.88	1.80	2.42	4.0	1.0	40 cc	Nb – Lower Heat Shields
SO-36	2”	2.88	2.30	2.42	4.0	1.5	60 cc	Mo – Upper Heat Shields
SO-38	3”	2.88	2.30	3.42	4.0	1.5	90 cc	
AVAILABLE ON REQUEST: DOWN OR SIDE EVAPORATION SOURCE								



HIGH VOLUME SiO/ZnS SOURCES



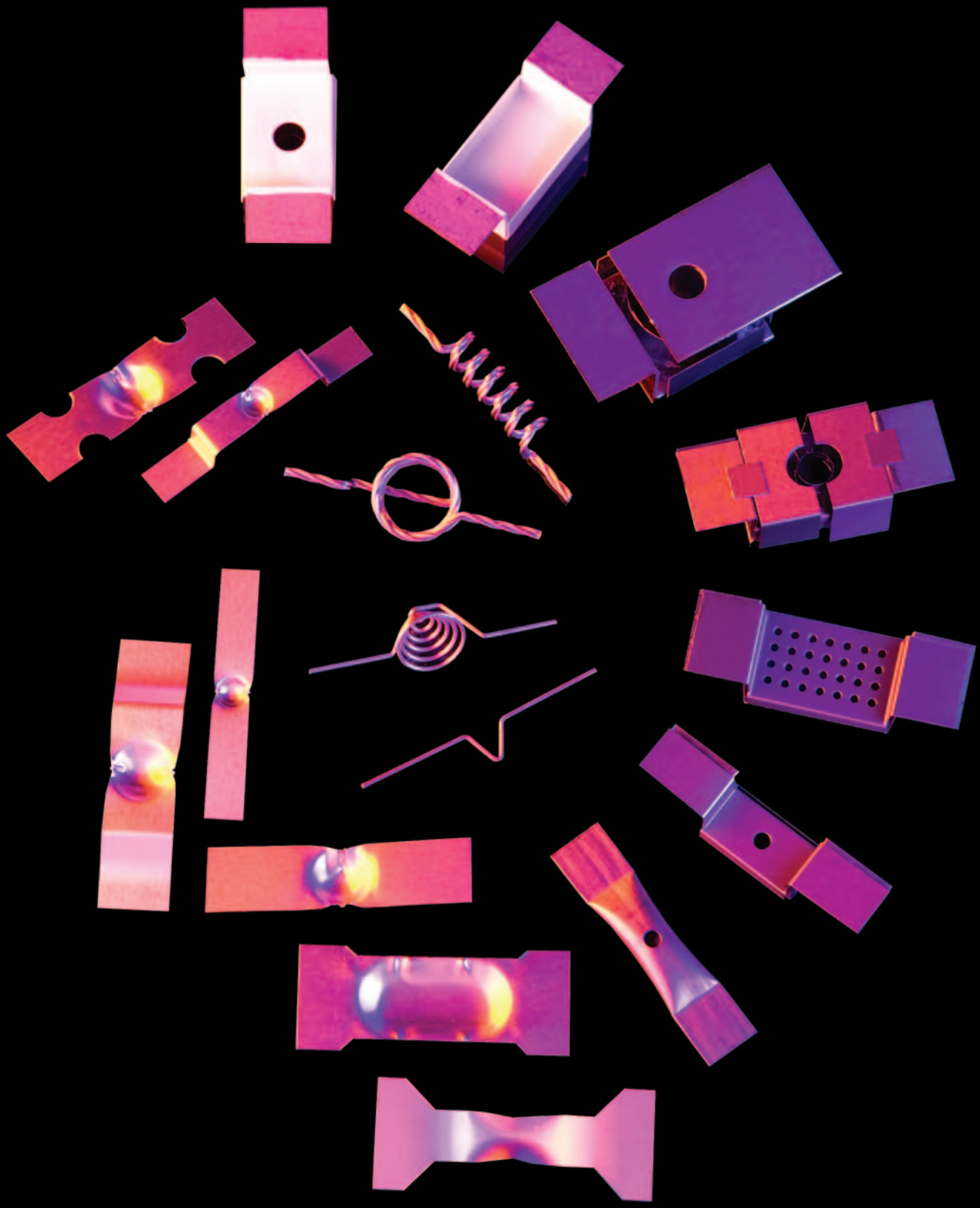
PART NUMBER	SL	W	SD	LW	OL	Ø	VOL*
SO-100	5.875”	3.250”	2.000”	0.750”	7.625”	0.750”	100 cc
SO-150	5.875”	3.500”	2.250”	0.750”	7.625”	0.750”	150 cc
SO-200	5.875”	3.750”	2.500”	1.500”	8.125”	0.750”	200 cc
SO-250	5.875”	4.250”	3.000”	2.250”	7.250”	0.750”	250 cc
SO-300	5.875”	4.250”	3.000”	1.000”	8.125”	0.750”	300 cc
SO-500	8.625”	4.250”	3.000”	2.250”	11.000”	0.750”	500 cc
SO-800	8.625”	6.000”	4.800”	2.000”	10.150”	1.000”	800 cc
SO-1000	7.875”	6.000”	4.800”	2.000”	11.000”	1.000”	1000 cc
SO-1500	8.250”	6.375”	5.188”	2.000”	12.000”	1.000”	1500 cc
SO-2000	8.375”	7.188”	5.938”	2.500”	11.500”	1.000”	2000 cc



*Volumes shown are maximums. Recommended usage is 50% of volumes indicated

MICRO ELECTRONIC SOURCES

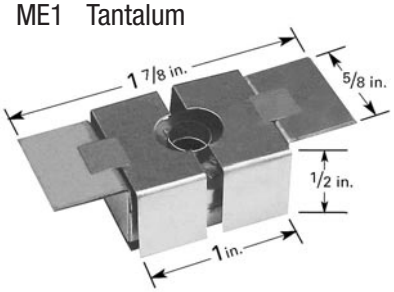
RD MATHIS COMPANY



Our Micro-Electronic sources represent a full line of smaller size sources that are similar to the standard size sources in our catalog. The overall length on these sources is slightly less than 2 inches, in most cases. The smaller sources are ideal for lower power systems or processes that require small amounts of evaporants. Custom sizes and modifications of these sources are available on request.

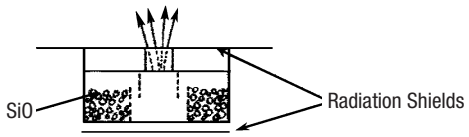
MICRO ELECTRONIC SOURCES

TYPE MATERIAL
ME1 Tantalum

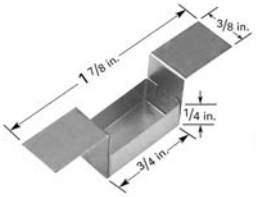


Silicon Monoxide and Cadmium Sulfide Source. This source is similar to the SM 10 Baffled Box. The capacity is approximately 2 grams.

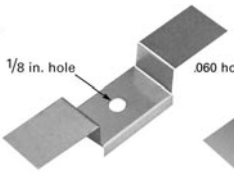
.7 VOLTS 129 AMPS 95 WATTS



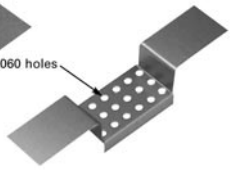
ME 2 (.005 Ta)



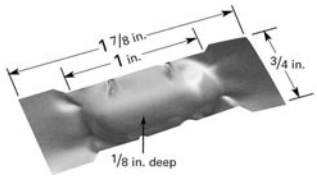
ME 2A Cover (.005 Ta)



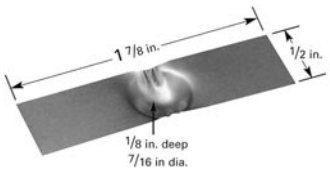
ME 2B Cover (.005 Ta)



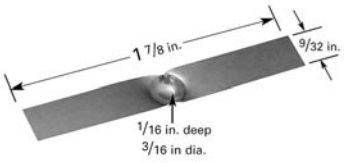
TYPE MATERIAL
ME3- .005W
ME3- .005Ta
ME3- .005Mo



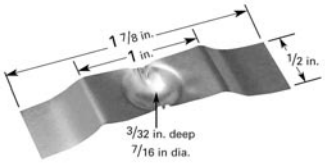
TYPE MATERIAL
ME4- .005W
ME4- .005Ta
ME4- .005Mo



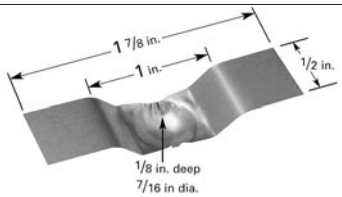
TYPE MATERIAL
ME5- .005W
ME5- .005Ta
ME5- .005Mo



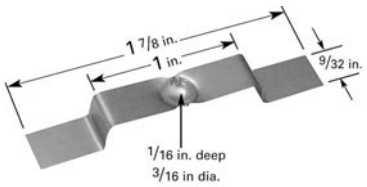
TYPE MATERIAL
ME6A- .005W
ME6A- .005Ta
ME6A- .005Mo



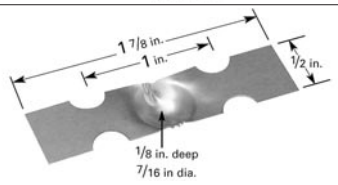
TYPE MATERIAL
ME6B- .005W
ME6B- .005Ta
ME6B- .005Mo



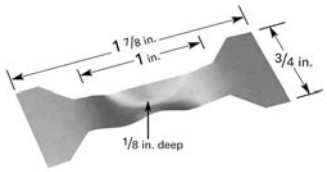
TYPE MATERIAL
ME7- .005W
ME7- .005Ta
ME7- .005Mo



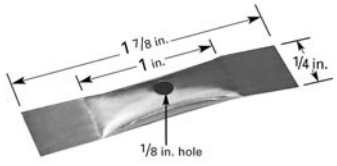
TYPE MATERIAL
ME8- .005W
ME8- .005Ta
ME8- .005Mo



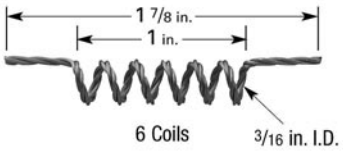
TYPE MATERIAL
ME9- .005W
ME9- .005Ta
ME9- .005Mo



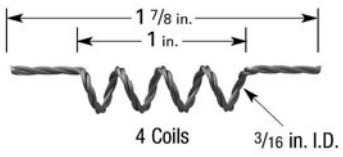
TYPE MATERIAL
ME10- .005Ta



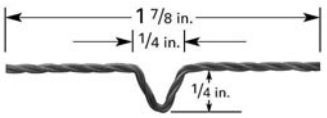
TYPE MATERIAL
ME11- .030W
ME11- 3x.025W



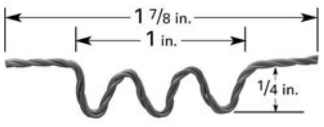
TYPE MATERIAL
ME12- .030W
ME12- 3x.025W



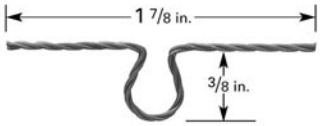
TYPE MATERIAL
ME13A- .030W
ME13A- 3x.025W



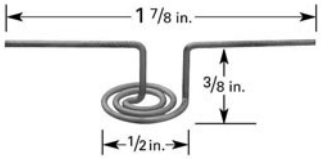
TYPE MATERIAL
ME13B- .030W
ME13B- 3x.025W



TYPE MATERIAL
ME13C- .030W
ME13C- 3x.025W



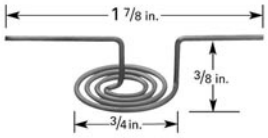
TYPE MATERIAL
ME14- .030W
ME14- .040W



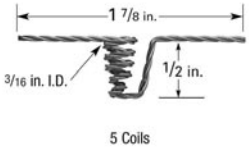
TUNGSTEN – TANTALUM – MOLYBDENUM

RD MATHIS COMPANY

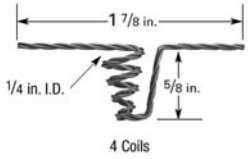
TYPE MATERIAL
ME15- .030W
ME15- .040W



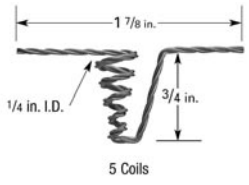
TYPE MATERIAL
ME16A- .030W
ME16A- 3x.025W



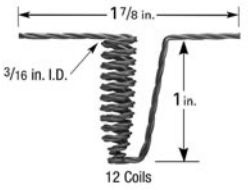
TYPE MATERIAL
ME16B- .030W
ME16B- 3x.025W



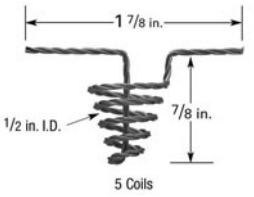
TYPE MATERIAL
ME16C- .030W
ME16C- 3x.025W



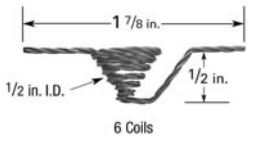
TYPE MATERIAL
ME16D- .030W
ME16D- 3x.025W



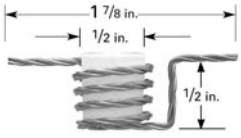
TYPE MATERIAL
ME16E- .030W
ME16E- 3x.025W



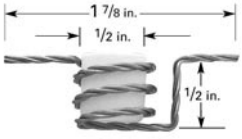
TYPE MATERIAL
ME17- .030W
ME17- 3x.025W



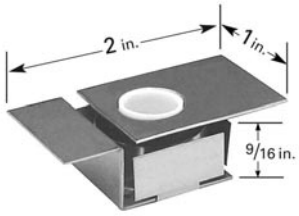
TYPE MATERIAL
ME18A- 3x.025W
ME18A- 3x.030W
Use with C1 Crucible



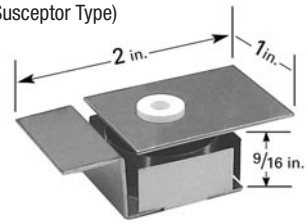
TYPE MATERIAL
ME18B- 3x.025W
ME18B- 3x.030W
Use with C9 Crucible



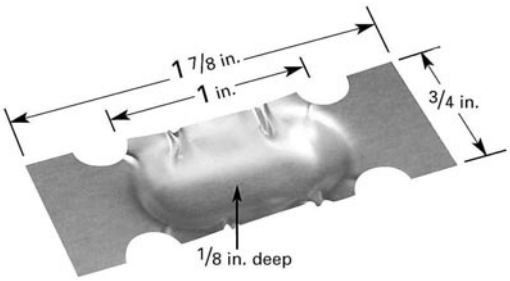
TYPE
ME19
Use with C1 and C9 Crucible
Crucible size 1/2 in. x 1/2 in.



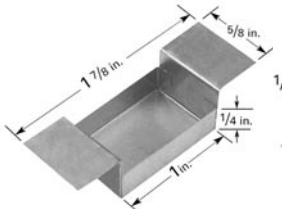
TYPE
ME20
Use with C10 Crucible
Crucible size 1/2 in. x 1/4 in.
(Susceptor Type)



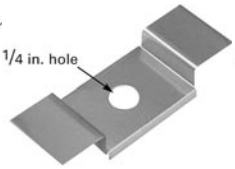
TYPE MATERIAL
ME21- .005W
ME21- .005Ta
ME21- .005Mo



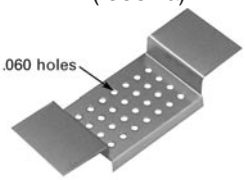
ME 22
(.005 Ta)



ME 22A
Cover
(.005 Ta)

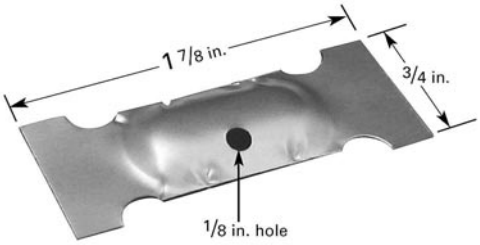


ME 22B
Cover
(.005 Ta)



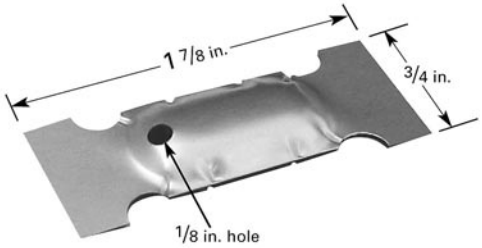
TYPE MATERIAL
ME23- .005W
ME23- .005Ta
ME23- .005Mo

(Covered
Boat Source)



TYPE MATERIAL
ME24- .005W
ME24- .005Ta
ME24- .005Mo

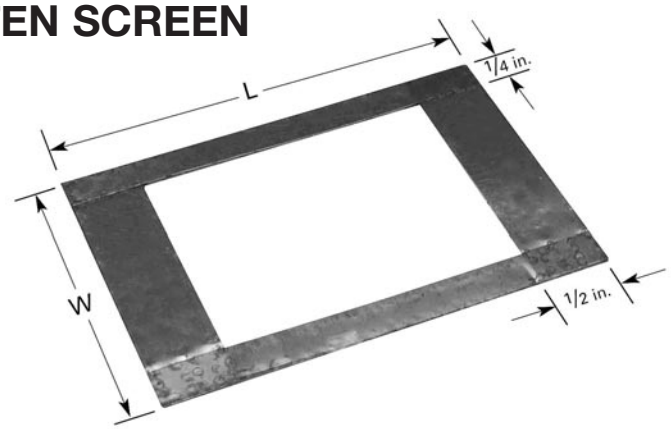
(Covered
Boat Source)



TUNGSTEN SCREEN

TYPE	SIZE
TM1	2 in. x 3 in.
TM1	2 in. x 4 in.
TM1	3 in. x 4 in.
TM1	4 in. x 4 in.
TM1	3 in. x 6 in.
TM-2	Linear

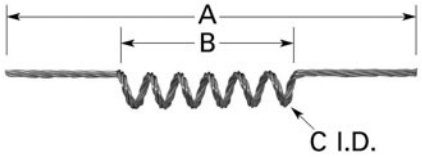
Tungsten screen material available without frame in custom lengths x 12 inches wide. Part No. TM-2



RD MATHIS COMPANY

R.D. Mathis Company specializes in the quality fabrication of Hi-Vacuum Evaporation Sources and Evaporation Materials. Our refractory metal facilities are completely flexible... mass production or small custom orders are produced with equal ease and attention to detail, customer specifications are rigidly adhered to. Engineering consultation is available to solve those difficult "source" problems.

CUSTOM ORDER INFORMATION



A – Overall length
B – Coil length
C – I.D. of coil
D – No. of coils
E – Material

Continuous coils are available with I.D. diameters 1/4 in., 3/8 in. and 1/2 in.

For a prompt quotation on any special source...in either custom or production quantities...**please send us a sketch showing type of material, size and dimensions.**

MATERIAL FOR RESALE

As a service to our customers, R.D. Mathis Company has available small quantity orders of the following material.

WIRE	SHEET	TUNGSTEN MESH	ROD
.001 through .020W	.005W, Ta, Mo	TM2 12" wide x	.070W
3 x .025W	.010W, Ta, Mo, Nb	custom length,	.080W
3 x .030W	.015W, Ta, Mo	wire size .001"	.100W
4 x .030W	.020W, Ta		.125W
3 x .040W			
.040W			
.060W			
P8 – 3 x .025W Loose Lay			
P8 – 3 x .030W Loose Lay			

W = Tungsten
Ta = Tantalum
Mo = Molybdenum
Nb = Niobium

NOTES

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2025