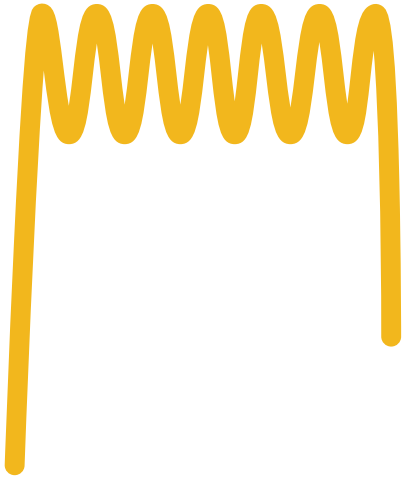


MATERIALS
EVAPORATION SOURCES

- Evaporation Source Selection Guide ..... I 02
- Tungsten Filaments for Vacuum Metalizing ..... I 04
- Tungsten Rod Source ..... I 07
- Point Source Loop Filaments ..... I 08
- Heater Filaments ..... I 10
- Baskets ..... I 11
- Crucibles ..... I 14
- Heat Shielded Crucible Heaters ..... I 16
- Boat Sources ..... I 18
- Folded Boats ..... I 29
- Alumina Coated Evaporation Sources ..... I 31
- Special Tantalum Boats ..... I 37
- Folded Baffled Box Sources ..... I 41
- Baffled Box Sources for SiO, ZnS ..... I 43
- Microelectronic Sources Tungsten – Tantalum – Molybdenum ..... I 48
- Chrome Plated Tungsten Rods ..... I 53
- Tungsten Screens ..... I 54

Evaporation Source Selection Guide

This source selection guide is provided to help you determine which evaporation source type might fit your needs.

How to use the Guide:

1. Determine how much current your power supply is capable of safely producing.
2. Establish the vapor temperature of the material(s) you plan on evaporating.
3. Estimate the coating thickness you will be attempting. With the information shown in the following table, you can select which part types will best meet your needs.

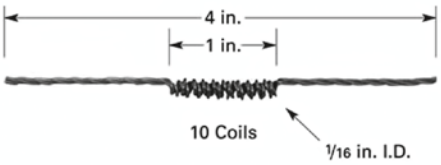
As always, Neyco offers open technical support if you need further assistance in selecting the right evaporation source to make your thin film coating process a success.

EVAPORATION SOURCE TYPE	PROCESS CONDITIONS									
	LOW POWER <100 A	MEDIUM POWER 100-250 A	HIGH POWER >250 A	LOW TEMP MATERIALS <1000°C	HIGH TEMP MATERIALS >1000°C	CORROSIVE MATERIALS	LOW VOLUME COATING <1000 Å	MEDIUM VOLUME 1000 Å - 5000 Å	HIGH VOLUME COATING >5000 Å	REDUCE PARTICULATES FROM SPITTING
Tungsten Filament	•			•	•		•			
Tungsten Point Source	•			•	•		•			
Tungsten Basket	•			•	•		•			
Alumina Coated Basket	•			•	•	•	•	•		
Tungsten Basket Heater	•			•			•	•		
Shielded Crucible Heater			•	•	•	•	•	•	•	
Evaporation Boat		•	•	•	•	•	•	•		
Folded Boat		•	•	•	•	•	•	•	•	
Alumina Coated Boat		•	•	•	•	•	•	•		
Baffled Box Sources			•	•	•		•	•	•	•
Shielded Baffled Box Sources			•	•	•		•	•	•	•
Micro-Electronic Sources	•			•	•		•			
Chrome Plated Tungsten Rods	•				•		•	•		•

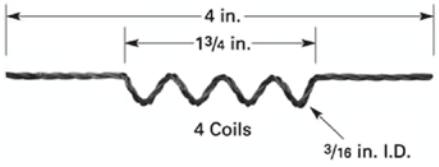
Tungsten Filaments for Vacuum Metalizing

Tungsten metalizing filaments have long been the standard for thin film depositions for a wide variety of materials. We offer an extensive selection of tungsten filaments to fit most applications as well as custom fabrication to meet your specific process needs. Our filaments are made in house using proven fabrication processes and are of the highest quality, reliability and consistency in the industry. The benefits of using tungsten metalizing filaments for your evaporation process include low cost, long life, high rates with low power, repeatability and ease of use.
Custom fabrication is available on request.

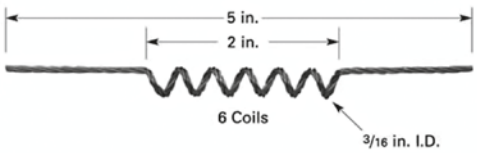
P/N	VOLTS	AMPS	WATTS	TEMP.
F1-.040W	3.07	36	111	1800°C
F1-3X.025W	3.00	42	126	1800°C
F1-3X.030W	2.94	54	159	1800°C



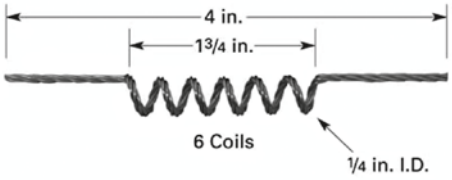
P/N	VOLTS	AMPS	WATTS	TEMP.
F2-3X.025W	3.43	49	168	1800°C
F2-3X.030W	3.08	63	194	1800°C
F2-4X.030W	2.70	77	208	1800°C



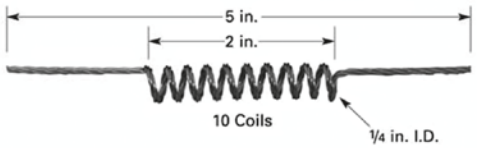
P/N	VOLTS	AMPS	WATTS	TEMP.
F3-.040W	3.91	39	152	1800°C
F3-2X.040W	4.00	68	272	1800°C
F3-3X.025W	4.61	48	221	1800°C
F3-3X.030W	4.15	60	249	1800°C
F3-4X.030W	4.00	77	308	1800°C



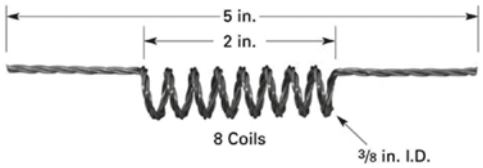
P/N	VOLTS	AMPS	WATTS	TEMP.
F4-.040W	3.70	38	141	1800°C
F4-2X.040W	3.97	66	262	1800°C
F4-3X.025W	5.29	48	254	1800°C
F4-3X.030W	4.28	62	265	1800°C
F4-4X.030W	3.63	73	265	1800°C



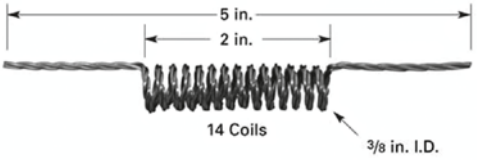
P/N	VOLTS	AMPS	WATTS	TEMP.
F5-.040W	6.90	37	255	1800°C
F5-2X.040W	6.82	64	436	1800°C
F5-3X.025W	8.05	45	362	1800°C
F5-3X.030W	6.58	57	375	1800°C
F5-3X.040W	5.60	83	465	1800°C
F5-4X.030W	6.10	69	421	1800°C



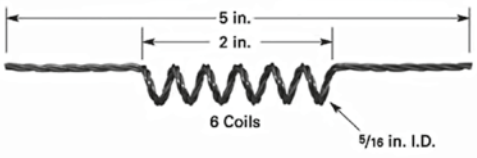
P/N	VOLTS	AMPS	WATTS	TEMP.
F6-2X.040W	7.20	64	461	1800°C
F6-3X.025W	8.72	44	384	1800°C
F6-3X.030W	8.25	58	478	1800°C
F6-3X.040W	6.42	84	539	1800°C
F6-4X.030W	7.29	71	518	1800°C



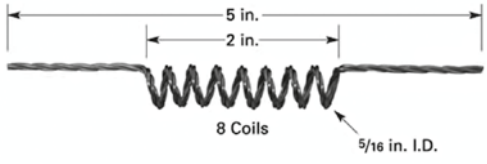
P/N	VOLTS	AMPS	WATTS	TEMP.
F7-2X.040W	10.97	55	603	1800°C
F7-3X.030W	11.65	52	606	1800°C
F7-3X.040W	9.40	78	733	1800°C
F7-4X.030W	10.31	65	670	1800°C



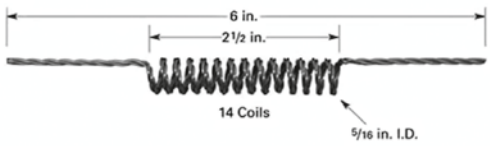
P/N	VOLTS	AMPS	WATTS	TEMP.
F8-2X.040W	5.00	66	330	1800°C
F8-3X.030W	5.39	62	334	1800°C
F8-3X.040W	4.61	87	401	1800°C
F8-4X.030W	5.09	74	377	1800°C



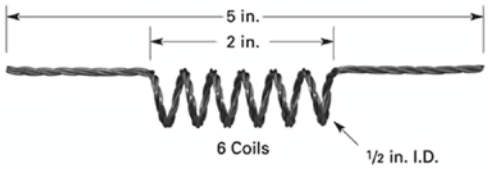
P/N	VOLTS	AMPS	WATTS	TEMP.
F9-2X.040W	6.66	65	433	1800°C
F9-3X.030W	6.50	57	370	1800°C
F9-3X.040W	5.43	86	467	1800°C
F9-4X.030W	6.07	71	431	1800°C



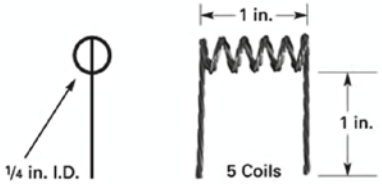
P/N	VOLTS	AMPS	WATTS	TEMP.
F10-2X.040W	10.62	61	648	1800°C
F10-3X.030W	10.90	55	600	1800°C
F10-3X.040W	9.02	83	749	1800°C
F10-4X.030W	10.00	68	680	1800°C



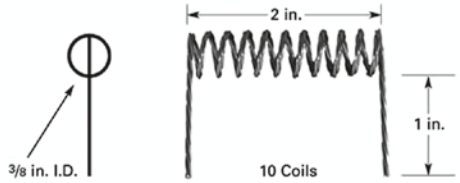
P/N	VOLTS	AMPS	WATTS	TEMP.
F11-2X.040W	6.74	65	438	1800°C
F11-3X.030W	7.07	58	410	1800°C
F11-3X.040W	5.70	87	496	1800°C
F11-4X.030W	6.40	70	448	1800°C



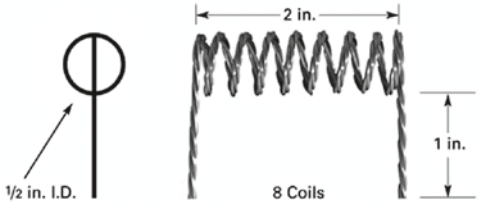
P/N	VOLTS	AMPS	WATTS	TEMP.
F12-3X.025W	4.44	46	204	1800°C
F12-3X.030W	3.82	57	218	1800°C



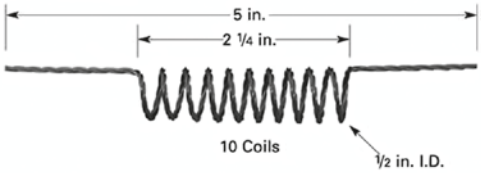
P/N	VOLTS	AMPS	WATTS	TEMP.
F13-3X.025W	11.00	44	484	1800°C
F13-3X.030W	9.06	57	516	1800°C
F13-4X.030W	8.59	71	610	1800°C



P/N	VOLTS	AMPS	WATTS	TEMP.
F14-3X.030W	9.44	56	529	1800°C
F14-3X.040W	8.20	88	722	1800°C
F14-4X.030W	8.80	68	598	1800°C

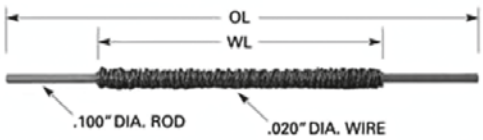


P/N	VOLTS	AMPS	WATTS	TEMP.
F15-3X.030W	11.53	57	657	1800°C
F15-3X.040W	9.66	85	821	1800°C
F15-4X.030W	10.63	70	744	1800°C



Tungsten Rod Source

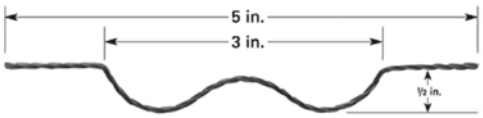
P/N	VOLTS	AMPS	WATTS	TEMP.
F16A	1.12	148	166	1500°C
F16B	1.19	149	177	1500°C
F16C	1.30	172	224	1500°C
F16D	3.62	223	807	1500°C



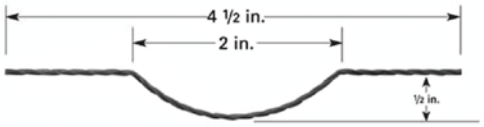
P/N	OL	WL	WRAP LAYERS
F16A	4	2	8
F1B	5	3	8
F16C	5	3	12
F16D	8	6	12

Point Source Loop Filaments

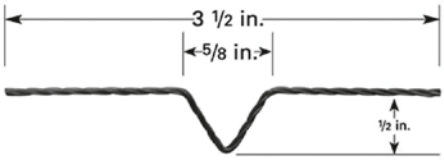
P/N	VOLTS	AMPS	WATTS	TEMP.
P1-.060W	2.08	73	152	1800°C
P1-3X.025W	2.95	50	148	1800°C
P1-3X.030W	2.36	65	153	1800°C
P1-4X.030W	2.76	80	221	1800°C



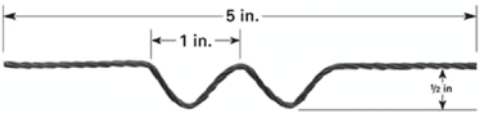
P/N	VOLTS	AMPS	WATTS	TEMP.
P2-.060W	1.84	75	138	1800°C
P2-3X.025W	2.83	48	136	1800°C
P2-3X.030W	3.56	78	278	1800°C
P2-4X.030W	2.04	82	167	1800°C



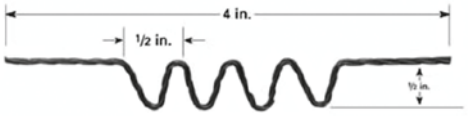
P/N	VOLTS	AMPS	WATTS	TEMP.
P3-.060W	1.39	79	110	1800°C
P3-3X.025W	2.26	50	113	1800°C
P3-3X.030W	1.94	64	124	1800°C
P3-4X.030W	1.59	84	134	1800°C



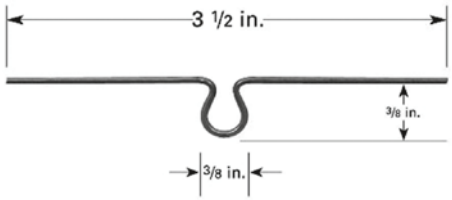
P/N	VOLTS	AMPS	WATTS	TEMP.
P4-.060W	2.04	74	151	1800°C
P4-3X.025W	3.20	51	163	1800°C
P4-3X.030W	2.04	64	131	1800°C
P4-4X.030W	2.69	80	215	1800°C



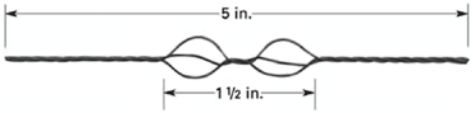
P/N	VOLTS	AMPS	WATTS	TEMP.
P5-.040W	3.44	40	138	1800°C
P5-.060W	3.09	71	219	1800°C
P5-3X.025W	3.80	51	194	1800°C
P5-3X.030W	3.50	66	231	1800°C
P5-4X.030W	3.13	79	247	1800°C



P/N	VOLTS	AMPS	WATTS	TEMP.
P6-.040W	1.94	42	81	1800°C
P6-.060W	1.46	75	109	1800°C
P6-3X.025W	2.08	51	106	1800°C



P/N	VOLTS	AMPS	WATTS	TEMP.
P7-3X.030W	2.78	69	192	1800°C
P7-4X.030W	2.42	87	211	1800°C

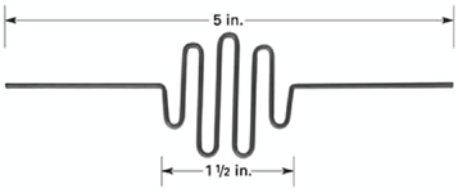


P/N	VOLTS	AMPS	WATTS	TEMP.
P8-3X.025W	9.48	54	512	1800°C
P8-3X.030W	8.28	72	596	1800°C

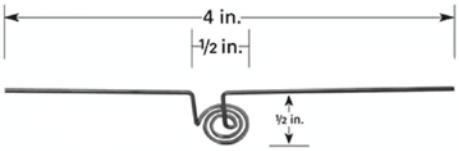
(Loose lay wire order by ft.)

Heater Filaments

P/N	VOLTS	AMPS	WATTS	TEMP.
H1-.040W	7.90	31	245	1800°C
H1-.060W	6.10	71	433	1800°C

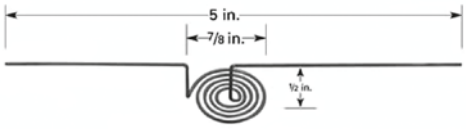


P/N	VOLTS	AMPS	WATTS	TEMP.
H2-.040W	4.18	36	150	1800°C
H2-.060W	2.83	69	195	1800°C



Note: .060W has one less turn

P/N	VOLTS	AMPS	WATTS	TEMP.
H3-.040W	7.39	34	251	1800°C
H3-.060W	5.22	63	329	1800°C

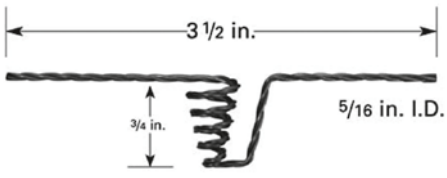


Note: .060W has two less turns

Baskets

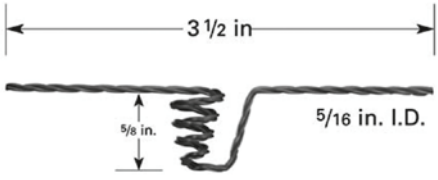
Tungsten Evaporation Baskets offer an effective method of reaching high temperatures with low current. The benefits of using tungsten baskets as an evaporation source for your deposition process include low cost, ease of use, multi-directional coatings and low power requirements. Custom fabrication, to meet your specific process needs, is available upon request.

P/N	VOLTS	AMPS	WATTS	TEMP.
B1-.040W	3.47	34	118	1800°C
B1-3X.025W	4.22	43	181	1800°C
B1-3X.030W	3.69	53	196	1800°C



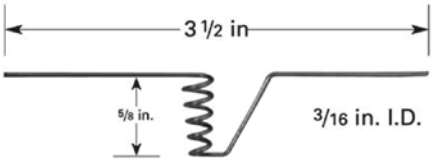
5 Coils

P/N	VOLTS	AMPS	WATTS	TEMP.
B2-.040W	3.04	36	109	1800°C
B2-3X.025W	3.50	44	154	1800°C
B2-3X.030W	3.00	54	162	1800°C



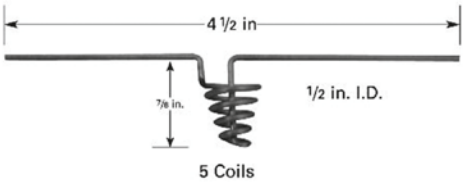
4 Coils

P/N	VOLTS	AMPS	WATTS	TEMP.
B3-.040W	5.40	33	178	1800°C
B3-3X.025W	3.51	42	147	1800°C

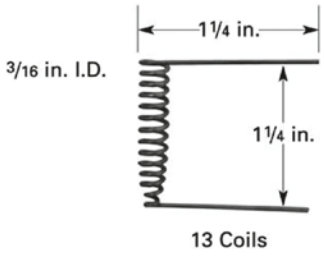


5 Coils

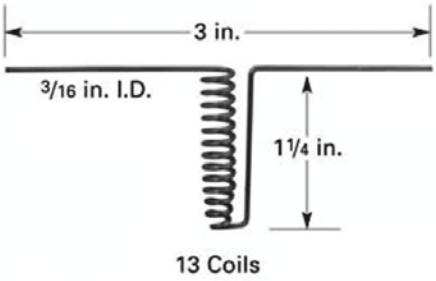
P/N	VOLTS	AMPS	WATTS	TEMP.
B4-.060W	4.02	59	237	1800°C
B4-3X.030W	5.24	52	272	1800°C



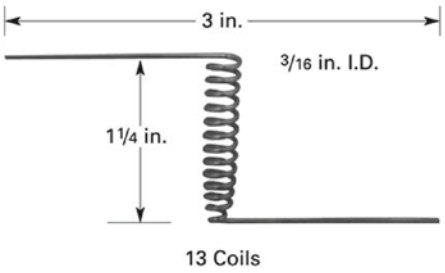
P/N	VOLTS	AMPS	WATTS	TEMP.
B5-.040W	5.50	33	182	1800°C
B5-3X.025W	5.83	37	216	1800°C



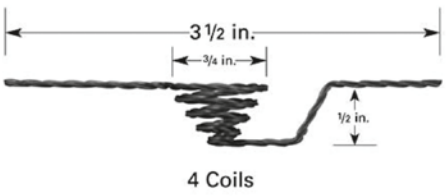
P/N	VOLTS	AMPS	WATTS	TEMP.
B6-.040W	6.62	32	212	1800°C
B6-3X.025W	7.04	39	275	1800°C



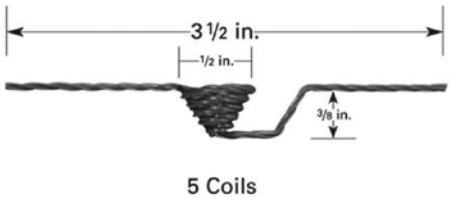
P/N	VOLTS	AMPS	WATTS	TEMP.
B7-.040W	6.22	32	199	1800°C
B7-3X.025W	6.84	38	260	1800°C



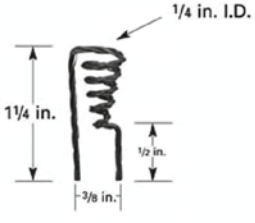
P/N	VOLTS	AMPS	WATTS	TEMP.
B12A-.040W	5.00	37	185	1800°C
B12A-3X.025W	5.31	44	234	1800°C
B12A-3X.030W	4.80	55	264	1800°C



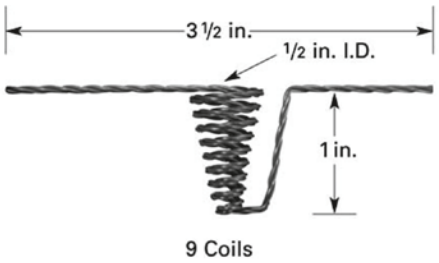
P/N	VOLTS	AMPS	WATTS	TEMP.
B12B-.040W	3.96	33	131	1800°C
B12B-.060W	2.54	99	251	1800°C
B12B-3X.025W	4.56	41	187	1800°C
B12B-3X.030W	3.17	57	181	1800°C



P/N	VOLTS	AMPS	WATTS	TEMP.
B13-.040W	3.22	37	119	1800°C
B13-3X.025W	4.04	45	182	1800°C
B13-3X.030W	3.36	57	192	1800°C

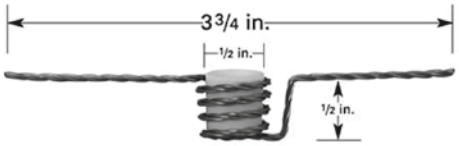


P/N	VOLTS	AMPS	WATTS	TEMP.
B14-.060W	4.83	54	261	1800°C
B14-3X.030W	6.25	50	312	1800°C
B14-4X.030W	5.82	62	361	1800°C

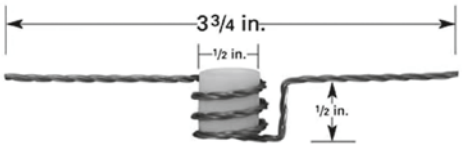


9 Coils

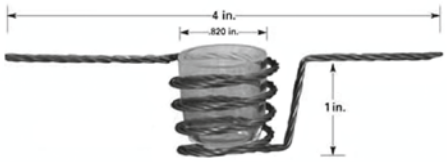
P/N	VOLTS	AMPS	WATTS	TEMP.
B8A-3X.025W	6.28	47	295	1800°C
B8A-3X.030W	6.06	55	333	1800°C
Use with C1 crucible				



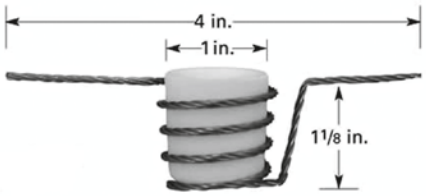
P/N	VOLTS	AMPS	WATTS	TEMP.
B8B-3X.025W	5.80	43	249	1800°C
B8B-3X.030W	5.15	57	294	1800°C
Use with C9 crucible				



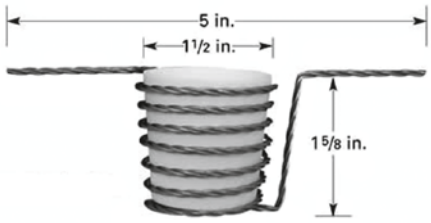
P/N	VOLTS	AMPS	WATTS	TEMP.
B9-3X.030W	8.42	57	480	1800°C
B9-3X.040W	7.18	85	610	1800°C
B9-4X.030W	7.76	70	543	1800°C
Use with C2 crucible				



P/N	VOLTS	AMPS	WATTS	TEMP.
B10-3X.040W	8.73	85	742	1800°C
B10-4X.030W	9.76	71	693	1800°C
Use with C5 crucible				



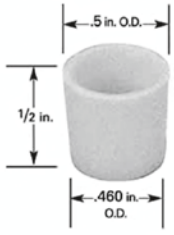
P/N	VOLTS	AMPS	WATTS	TEMP.
B11-3X.040W	19.70	84	1655	1800°C
Use with C6 crucible				



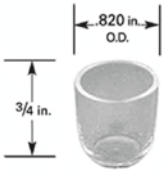
Crucibles

We offer 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 and crucible heaters. Custom sizes are available upon request. We also offer liners for electron beam systems.

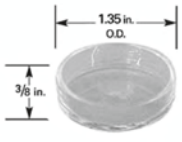
P/N	FEATURES
C1-AO C1-BN C1-BNC C1-Q	Tapered Wall thickness = 0.030 Use with B8A basket Use with CH-1, CH-10, CH-11 and ME-19 Heaters



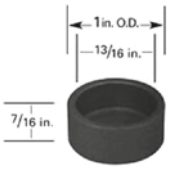
P/N	FEATURES
C2-Q	Tapered Wall thickness = 0.050 Use with B-9 Basket



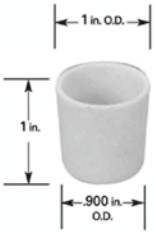
P/N	FEATURES
C3-Q	Wall thickness = 0.070



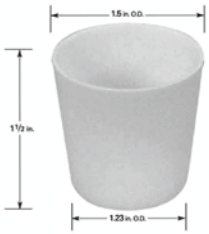
P/N	FEATURES
C4-C C4-MO C4-TA	Wall thickness = 0.090



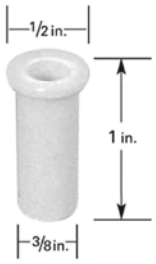
P/N	FEATURES
C5-AO C5-BN C5-BNC C5-Q	Tapered Wall thickness = 0.060 Use with CH-5, CH-12 and CH-13 Heaters Use with B-10 Basket



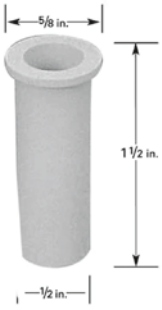
P/N	FEATURES
C6-AO C6-Q	Tapered Wall thickness = 0.070 Use with CH-14 Heaters Use with B-11 Baskets



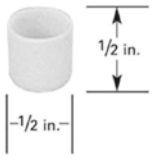
P/N	FEATURES
C7-BN C7-C C7-MO C7-Q C7-TA	1/4 in. ID Susceptor type Use with CH-7 Heaters



P/N	FEATURES
C8-BN C8-C C8-MO C8-Q C8-TA	3/4 in. ID Susceptor type Use with CH-8 Heaters



P/N	FEATURES
C9-AO C9-BN C9-BNC C9-C C9-MO C9-Q C9-TA	Straight wall Wall thickness = 0.040 Use with CH-1, CH-10, CH-11, ME-19 Heaters and B8B Baskets



P/N	FEATURES
C10-BN C10-C C10-MO C10-Q C10-TA	5/32 in. ID Susceptor type Use with CH-9, ME-20 Heaters

AO: Alumina Oxide, **Q:** Quartz, **BN:** Boron Nitride,
TA: Tantalum, **MO:** Molybnenum, **C:** Carbon.

Heat Shielded Crucible Heaters

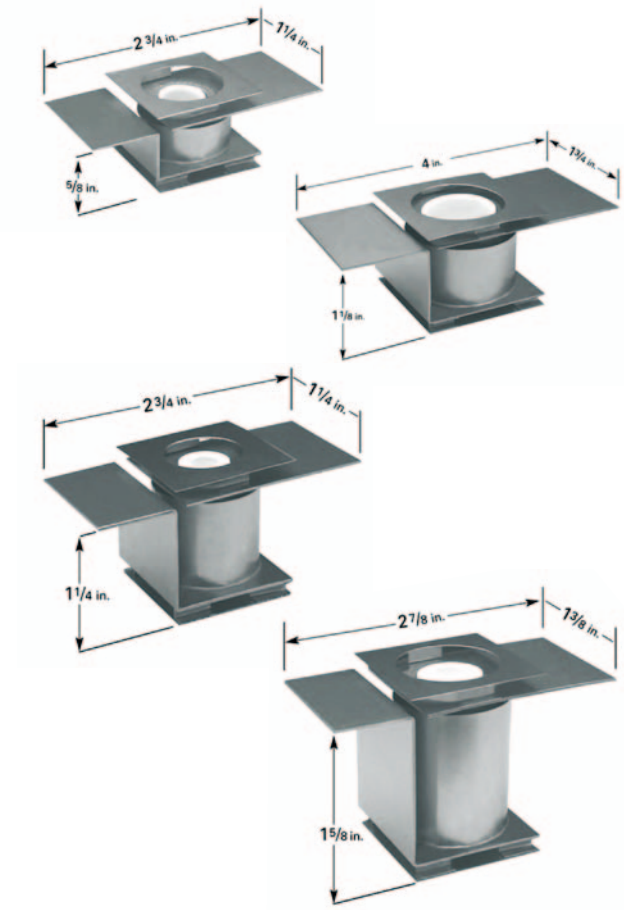
Shielded Crucible Heaters provide uniform heating to the installed crucible and allow very high rates as well as high temperatures, up to 1800°C, to be achieved. Due to the rigid construction, heater and crucible life is extended. The thermal shields protect your components by reducing the radiant heat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

P/N	VOLTS	AMPS	WATTS	TEMP.
CH-1	1.34	273	366	1600°C
Use with C1 and C9 crucibles				

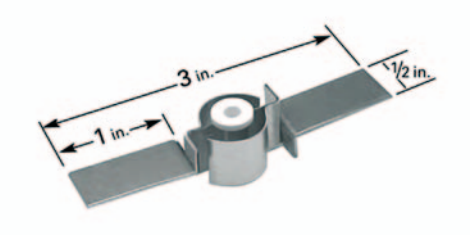
P/N	VOLTS	AMPS	WATTS	TEMP.
CH-5	1.79	346	619	1600°C
Use with C5 crucible				

P/N	VOLTS	AMPS	WATTS	TEMP.
CH-7	1.47	187	275	1600°C
Use with C7 crucible				

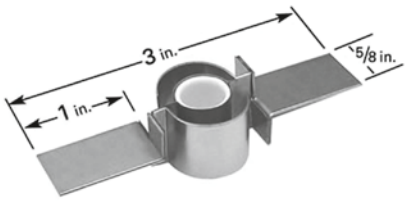
P/N	VOLTS	AMPS	WATTS	TEMP.
CH-8	1.73	199	344	1600°C
Use with C8 crucible				



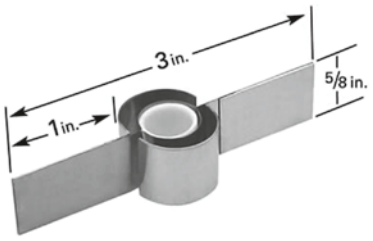
P/N	VOLTS	AMPS	WATTS	TEMP.
CH-9	1.93	191	369	1600°C
Use with C10 crucible				



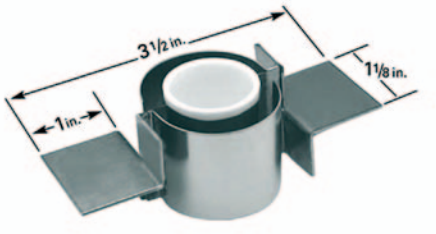
P/N	VOLTS	AMPS	WATTS	TEMP.
CH-10	1.70	191	325	1600°C
Use with C1 and C9 crucibles (horizontal leads)				



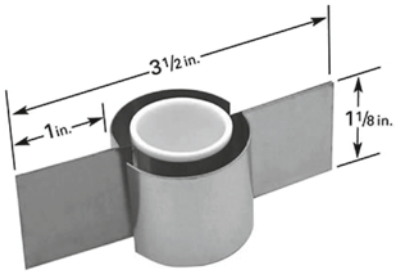
P/N	VOLTS	AMPS	WATTS	TEMP.
CH-11	1.70	191	325	1600°C
Use with C1 and C9 crucibles (vertical leads)				



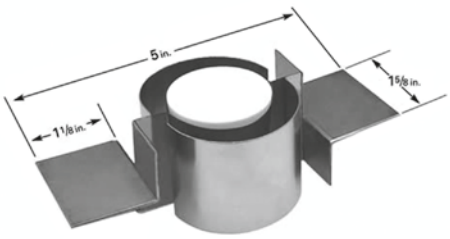
P/N	VOLTS	AMPS	WATTS	TEMP.
CH-12	2.19	339	742	1600°C
Use with C5 crucible (horizontal leads)				



P/N	VOLTS	AMPS	WATTS	TEMP.
CH-13	2.19	339	742	1600°C
Use with C5 crucible (vertical leads)				



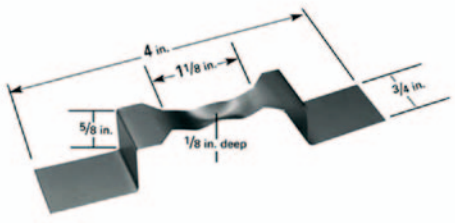
P/N	VOLTS	AMPS	WATTS	TEMP.
CH-14	3.82	525	2006	1600°C
Use with C6 crucible (horizontal leads)				



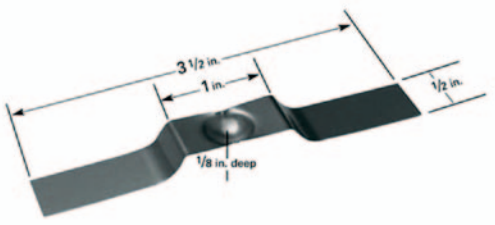
Boat Sources

Evaporation Boats are capable of depositing a wide variety materials. We offer an extensive selection of standard tungsten boats, tantalum boats and molybdenum boats as well as custom fabrication to meet your specific evaporation source needs. All of our evaporation boats are available in a variety of materials and thicknesses. If you need help in selecting the right boat for your process, please give our technical staff a call.

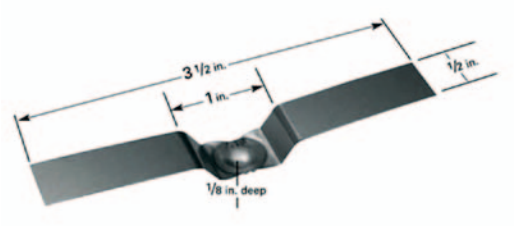
P/N	VOLTS	AMPS	WATTS	TEMP.
S1-.005Mo	1.29	63	81	1400°C
S1-.005Ta	2.72	64	174	1600°C
S1-.005W	2.25	101	227	1800°C
S1-.010Mo	0.96	96	92	1400°C
S1-.010Ta	1.91	96	183	1600°C
S1-.010W	1.79	144	258	1800°C
S1-.015W	1.50	184	276	1800°C



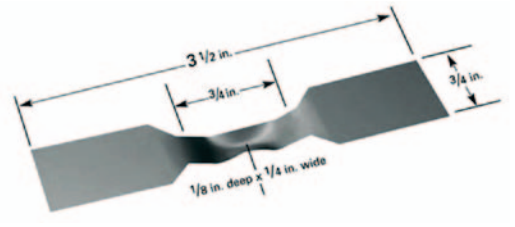
P/N	VOLTS	AMPS	WATTS	TEMP.
S2A-.005Mo	1.72	86	148	1400°C
S2A-.005Ta	3.37	100	337	1600°C
S2A-.005W	3.85	140	539	1800°C
S2A-.010Mo	1.13	130	147	1400°C
S2A-.010Ta	2.27	133	302	1600°C
S2A-.010W	2.57	185	475	1800°C
S2A-.015W	2.20	242	532	1800°C



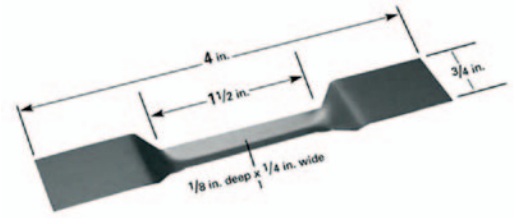
P/N	VOLTS	AMPS	WATTS	TEMP.
S2B-.005Mo	1.15	119	137	1400°C
S2B-.005Ta	3.42	97	332	1600°C
S2B-.005W	3.87	140	542	1800°C
S2B-.010Mo	1.10	131	144	1400°C
S2B-.010Ta	2.33	130	303	1600°C
S2B-.010W	2.58	187	482	1800°C
S2B-.015W	2.06	245	505	1800°C



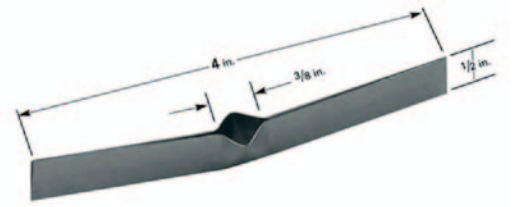
P/N	VOLTS	AMPS	WATTS	TEMP.
S3-.005Mo	0.98	64	63	1400°C
S3-.005Ta	2.04	64	131	1600°C
S3-.005W	1.95	100	195	1800°C
S3-.010Mo	77.00	103	79	1400°C
S3-.010Ta	1.44	92	132	1600°C
S3-.010W	1.47	158	232	1800°C
S3-.015W	1.96	130	255	1800°C



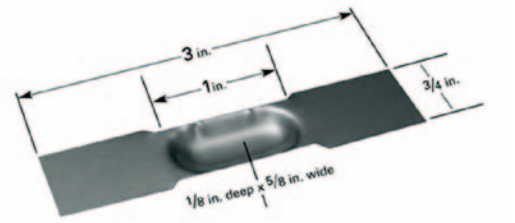
P/N	VOLTS	AMPS	WATTS	TEMP.
S4-.005Mo	1.31	63	83	1400°C
S4-.005Ta	2.62	64	168	1600°C
S4-.005W	2.76	96	265	1800°C
S4-.010Mo	0.97	93	90	1400°C
S4-.010Ta	1.83	93	170	1600°C
S4-.010W	2.03	138	280	1800°C
S4-.015W	1.51	191	288	1800°C



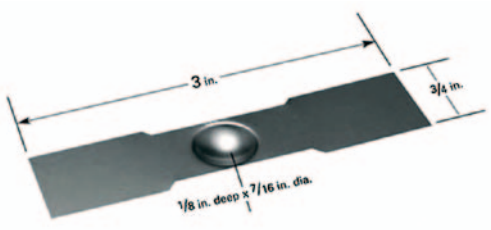
P/N	VOLTS	AMPS	WATTS	TEMP.
S5-.005Mo	1.59	133	211	1400°C
S5-.005Ta	3.29	149	490	1600°C
S5-.005W	3.18	199	633	1800°C
S5-.010Mo	1.02	208	212	1400°C
S5-.010Ta	2.09	220	460	1600°C



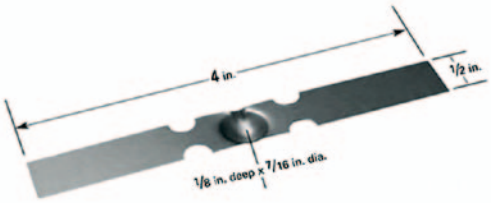
P/N	VOLTS	AMPS	WATTS	TEMP.	FEATURES
S6-.005Mo	1.46	123	180	1400°C	S6 Pan Boat
S6-.005Ta	2.77	133	368	1600°C	
S6-.005W	3.04	199	605	1800°C	
S6-.010Mo	0.99	181	179	1400°C	
S6-.010Ta	2.00	186	372	1600°C	
S6-.010W	2.14	263	563	1800°C	



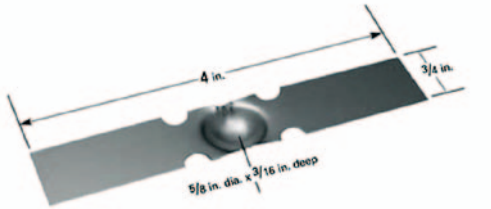
P/N	VOLTS	AMPS	WATTS	TEMP.	FEATURES
S7-.005Mo	1.21	108	131	1400°C	S7 Dimple Boat
S7-.005Ta	2.48	138	342	1600°C	
S7-.005W	2.49	181	451	1800°C	
S7-.010Mo	0.96	180	173	1400°C	
S7-.010Ta	1.80	155	279	1600°C	
S7-.010W	1.92	258	495	1800°C	



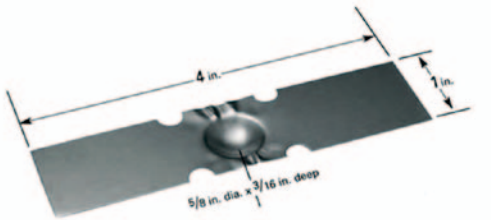
P/N	VOLTS	AMPS	WATTS	TEMP.	FEATURES
S8A-.005Mo	1.95	78	152	1400°C	S8 Isolated Hot Zone Boat (Dimple type)
S8A-.005Ta	4.44	92	408	1600°C	
S8A-.005W	4.96	136	675	1800°C	
S8A-.010Mo	1.33	112	149	1400°C	
S8A-.010Ta	2.92	129	377	1600°C	
S8A-.010W	3.11	185	575	1800°C	
S8A-.015W	2.37	234	555	1800°C	



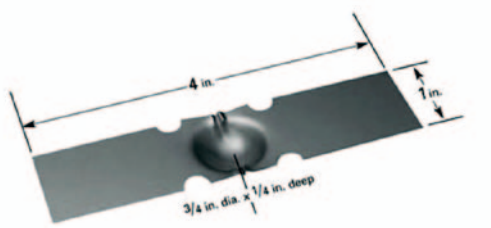
P/N	VOLTS	AMPS	WATTS	TEMP.	FEATURES
S8B-.005Mo	1.92	123	236	1400°C	S8 Isolated Hot Zone Boat (Dimple type)
S8B-.005Ta	4.44	139	617	1600°C	
S8B-.005W	3.71	204	757	1800°C	
S8B-.010Mo	1.40	170	238	1400°C	
S8B-.010Ta	2.86	190	543	1600°C	
S8B-.010W	2.85	292	832	1800°C	
S8B-.015W	2.24	374	838	1800°C	



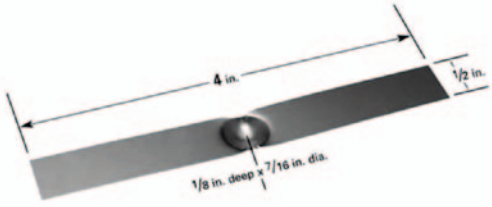
P/N	VOLTS	AMPS	WATTS	TEMP.	FEATURES
S8C-.010Mo	1.27	241	306	1400°C	S8 Isolated Hot Zone Boat (Dimple type)
S8C-.010Ta	2.97	276	820	1600°C	
S8C-.010W	2.99	387	1157	1800°C	
S8C-.015Mo	1.07	300	321	1400°C	
S8C-.015Ta	2.37	337	799	1600°C	



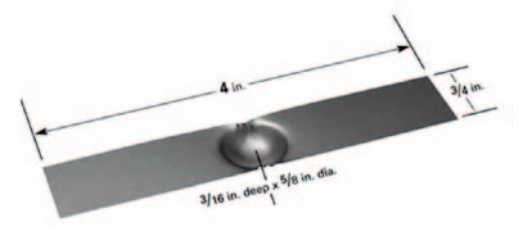
P/N	VOLTS	AMPS	WATTS	TEMP.	FEATURES
S8D-.010Mo	1.27	241	306	1400°C	S8 Isolated Hot Zone Boat (Dimple type)
S8D-.010Ta	2.97	262	778	1600°C	
S8D-.010W	2.94	378	1111	1800°C	
S8D-.015Mo	1.11	300	333	1400°C	
S8D-.015Ta	2.37	325	770	1600°C	



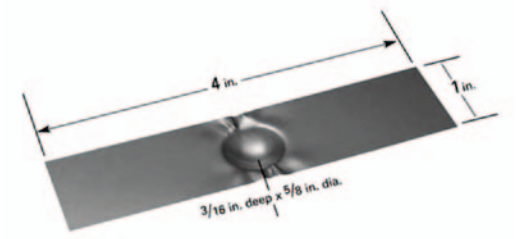
P/N	VOLTS	AMPS	WATTS	TEMP.	FEATURES
S9A-.005Mo	1.70	87	148	1400°C	S9 Dimple Boat
S9A-.005Ta	3.80	93	353	1600°C	
S9A-.005W	3.95	185	731	1800°C	
S9A-.010Mo	1.25	121	151	1400°C	
S9A-.010Ta	2.69	135	363	1600°C	
S9A-.010W	2.84	194	551	1800°C	
S9A-.015W	2.29	253	579	1800°C	



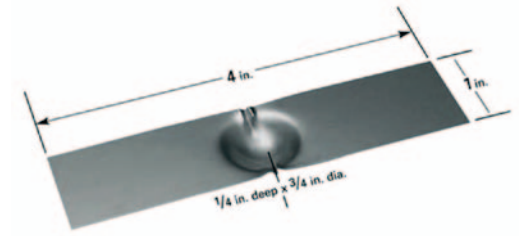
P/N	VOLTS	AMPS	WATTS	TEMP.	FEATURES
S9B-.005Mo	2.01	132	265	1400°C	S9 Dimple Boat
S9B-.005Ta	4.43	146	647	1600°C	
S9B-.005W	3.50	280	980	1800°C	
S9B-.010Mo	1.30	186	242	1400°C	
S9B-.010Ta	2.98	207	617	1600°C	
S9B-.010W	3.10	325	1008	1800°C	
S9B-.015W	2.76	386	1065	1800°C	



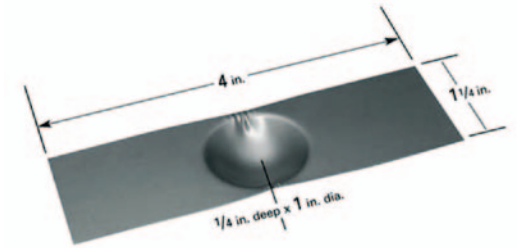
P/N	VOLTS	AMPS	WATTS	TEMP.
S9C-.010Mo	1.36	257	350	1400°C
S9C-.010Ta	3.27	281	919	1600°C
S9C-.010W	3.08	407	1254	1800°C
S9C-.015Mo	1.09	315	343	1400°C
S9C-.015Ta	2.31	333	769	1600°C



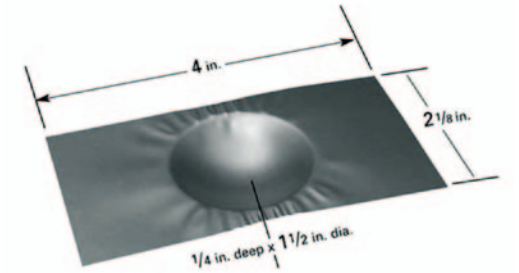
P/N	VOLTS	AMPS	WATTS	TEMP.
S9D-.010Mo	1.34	260	348	1400°C
S9D-.010Ta	2.89	262	757	1600°C
S9D-.010W	3.06	411	1258	1800°C
S9D-.015Mo	1.12	318	356	1400°C
S9D-.015Ta	2.35	333	783	1600°C
S9D-.025Ta	1.86	431	802	1600°C



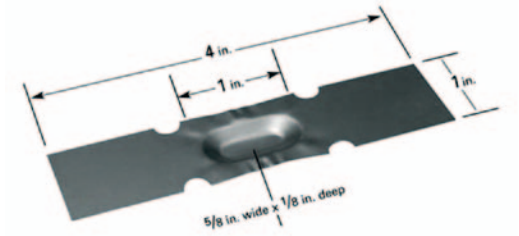
P/N	VOLTS	AMPS	WATTS	TEMP.
S9E-.010Mo	1.36	316	430	1400°C
S9E-.010Ta	2.97	340	1010	1600°C
S9E-.010W	3.21	525	1685	1800°C
S9E-.015Mo	1.12	417	467	1400°C
S9E-.015Ta	2.00	366	732	1600°C
S9E-.025Ta	1.93	539	1040	1600°C



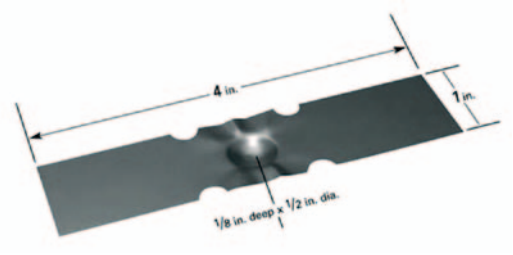
P/N	VOLTS	AMPS	WATTS	TEMP.
S9F-.010Mo	1.61	559	900	1400°C
S9F-.010Ta	3.12	601	1875	1600°C
S9F-.010W	3.31	811	2684	1800°C
S9F-.015Mo	1.44	682	982	1400°C
S9F-.015Ta	2.70	721	1947	1600°C
S9F-.025Ta	2.50	948	2370	1600°C



P/N	VOLTS	AMPS	WATTS	TEMP.
S10-.005Mo	2.03	170	345	1400°C
S10-.005Ta	4.26	193	822	1600°C
S10-.005W	4.4	267	1175	1800°C
S10-.010Mo	1.34	247	331	1400°C
S10-.010Ta	4.24	194	823	1600°C
S10-.010W	3.35	381	1276	1800°C

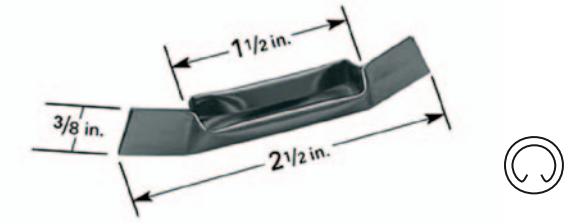


P/N	VOLTS	AMPS	WATTS	TEMP.
S11-.005Mo	1.95	165	322	1400°C
S11-.005Ta	4.10	180	738	1600°C
S11-.005W	3.94	261	1028	1800°C
S11-.010Mo	1.29	236	304	1400°C
S11-.010Ta	2.86	262	749	1600°C
S11-.010W	3.03	372	1127	1800°C

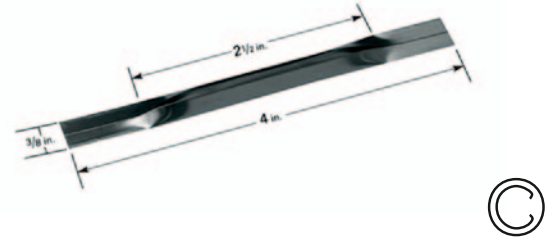


P/N	VOLTS	AMPS	WATTS	TEMP.
S12A-.005Mo	1.46	181	264	1400°C
S12A-.005Ta	2.97	197	585	1600°C
S12A-.010Mo	1.11	267	296	1400°C
S12A-.010Ta	2.22	273	606	1600°C

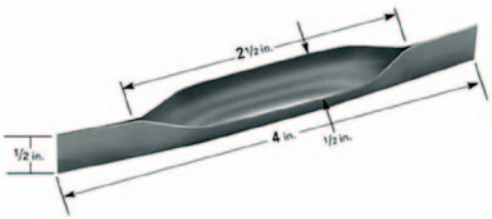
P/N	VOLTS	AMPS	WATTS	TEMP.
S12B-.005Mo	0.96	196	188	1400°C
S12B-.005Ta	1.82	203	369	1600°C
S12B-.010Mo	0.78	320	250	1400°C
S12B-.010Ta	1.48	298	441	1600°C



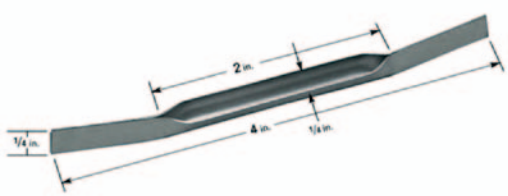
P/N	VOLTS	AMPS	WATTS	TEMP.
S13-.005Mo	1.32	106	140	1400°C
S13-.005Ta	2.87	110	316	1600°C
S13-.005W	3.04	149	543	1800°C
S13-.010Mo	0.97	156	151	1400°C
S13-.010Ta	1.92	158	303	1600°C



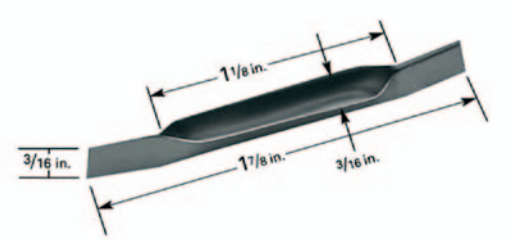
P/N	VOLTS	AMPS	WATTS	TEMP.
S14-.005Mo	1.71	170	291	1400°C
S14-.005Ta	3.92	179	702	1600°C
S14-.005W	4.21	283	1191	1800°C
S14-.010Mo	1.19	240	286	1400°C
S14-.010Ta	2.53	259	655	1600°C
S14-.010W	2.52	402	1013	1800°C
S14-.015W	2.40	459	1102	1800°C



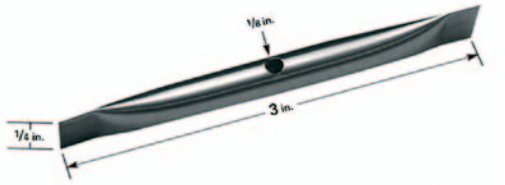
P/N	VOLTS	AMPS	WATTS	TEMP.
S15-.005Mo	1.76	86	151	1400°C
S15-.005Ta	3.80	90	342	1600°C
S15-.005W	4.08	144	588	1800°C
S15-.010Mo	1.23	129	159	1400°C
S15-.010Ta	2.86	133	380	1600°C
S15-.010W	3.04	200	608	1800°C
S15-.015W	2.23	249	555	1800°C



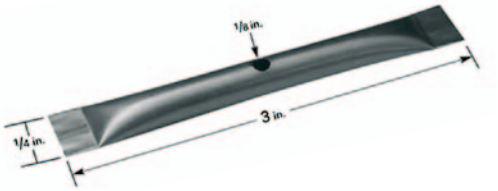
P/N	VOLTS	AMPS	WATTS	TEMP.
S16-.005Mo	0.87	73	64	1400°C
S16-.005Ta	1.49	65	97	1600°C
S16-.005W	1.58	110	174	1800°C
S16-.010Mo	0.72	131	94	1400°C
S16-.010Ta	1.17	115	135	1600°C
S16-.010W	1.10	143.00	159	1800°C



P/N	VOLTS	AMPS	WATTS	TEMP.
S17A-.005Ta	2.15	158	340	1600°C
S17A-.010Ta	1.40	183	256	1600°C

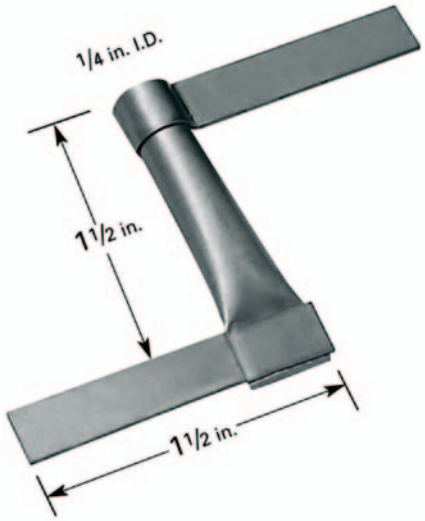


P/N	VOLTS	AMPS	WATTS	TEMP.
S17B-.005Ta	1.93	125	241	1600°C
S17B-.010Ta	1.43	187	267	1600°C

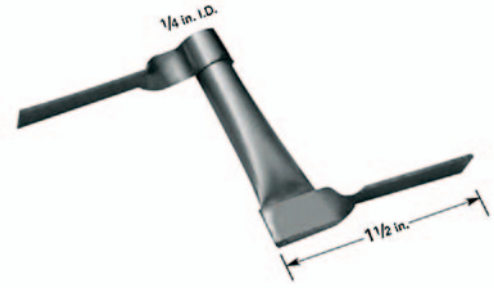


P/N	VOLTS	AMPS	WATTS	TEMP.
S18-BN	0	0	0	N/A
S18-C	11.35	317	3598	2000°C
S18-Mo	0.78	983	767	1400°C
S18-Ta	0	0	0	N/A
Cavity 2 in. long 3/8 in. wide				

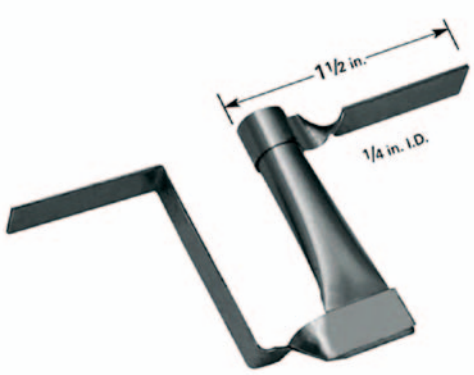
P/N	VOLTS	AMPS	WATTS	TEMP.
S19A-Ta	1.71	130	222	1600°C



P/N	VOLTS	AMPS	WATTS	TEMP.
S19B-Ta	1.83	134	245	1600°C



P/N	VOLTS	AMPS	WATTS	TEMP.
S19C-Ta	2.64	132	348	1600°C



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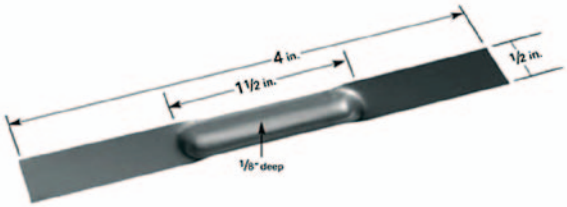
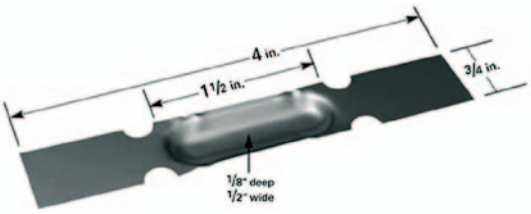
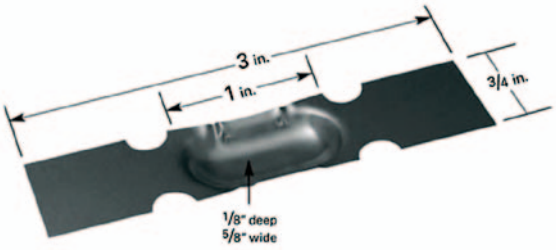
P/N	VOLTS	AMPS	WATTS	TEMP.
S20A-.005Mo	1.84	81	149	1400°C
S20A-.005Ta	3.40	94	320	1600°C
S20A-.005W	3.95	140	553	1800°C
S20A-.010Mo	1.27	129	164	1400°C
S20A-.010Ta	2.61	129	337	1600°C
S20A-.010W	2.90	196	568	1800°C
S20A-.015W	2.10	250	525	1800°C



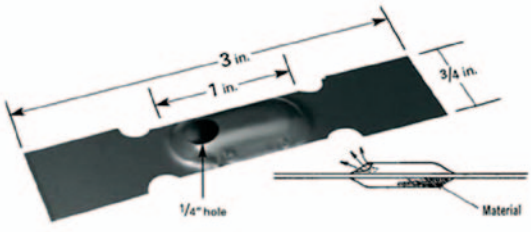
P/N	VOLTS	AMPS	WATTS	TEMP.
S21-.005Mo	2.11	123	260	1400°C
S21-.005Ta	4.50	138	621	1600°C
S21-.005W	3.26	144	469	1800°C
S21-.010Mo	1.47	184	270	1400°C
S21-.010Ta	2.87	198	568	1600°C
S21-.010W	3.28	300	984	1800°C



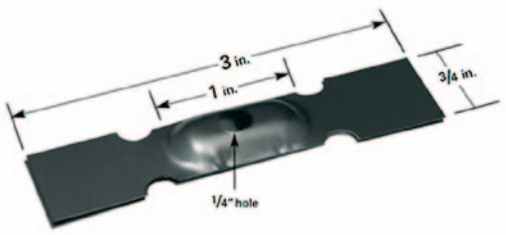
P/N	VOLTS	AMPS	WATTS	TEMP.
S22-.005Mo	1.54	122	188	1400°C
S22-.005Ta	2.94	150	441	1600°C
S22-.005W	3.32	198	657	1800°C
S22-.010Mo	1.09	190	207	1400°C
S22-.010Ta	2.28	209	477	1600°C
S22-.010W	2.55	283	722	1800°C



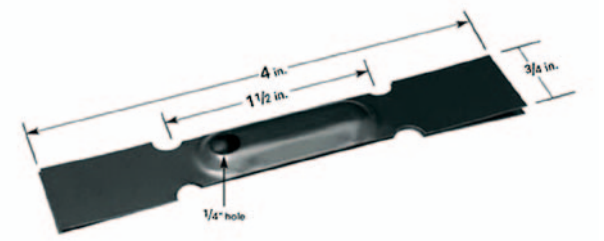
P/N	VOLTS	AMPS	WATTS	TEMP.
S23-.010Mo	0.88	301	265	1400°C
S23-.010Ta	1.68	295	496	1600°C
S23-.010W	1.50	375	562	1800°C
2 pcs top and bottom				



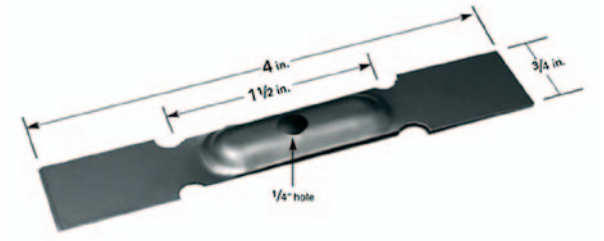
P/N	VOLTS	AMPS	WATTS	TEMP.
S24-.005Mo	1.24	202	250	1400°C
S24-.005Ta	2.28	190	433	1600°C
S24-.005W	2.21	256	566	1800°C
S24-.010Mo	0.83	297	247	1400°C
S24-.010Ta	1.77	329	582	1600°C
S24-.010W	1.70	386	656	1800°C
2 pcs top and bottom				



P/N	VOLTS	AMPS	WATTS	TEMP.
S25-.010Mo	1.14	300	342	1400°C
S25-.010Ta	2.16	272	588	1600°C
S25-.010W	2.30	375	862	1800°C
2 pcs top and bottom				

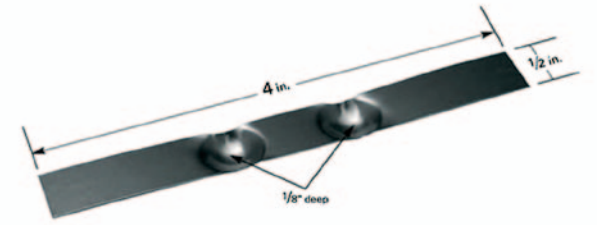


P/N	VOLTS	AMPS	WATTS	TEMP.
S26-.010Mo	1.10	278	306	1400°C
S26-.010Ta	2.40	293	703	1600°C
S26-.010W	2.14	383	820	1800°C
2 pcs top and bottom				

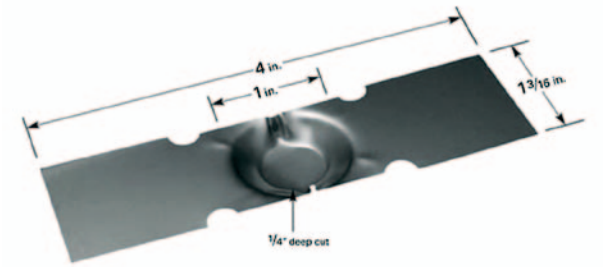


P/N	VOLTS	AMPS	WATTS	TEMP.
S27-.005Mo	0.94	94	88	1600°C
S27-.005Ta	2.09	99	207	1600°C
S27-.005W	2.22	134	297	1800°C
S27-.010Mo	0.75	148	111	1600°C
S27-.010Ta	1.48	137	203	1600°C
S27-.010W	1.57	185	290	1800°C

P/N	VOLTS	AMPS	WATTS	TEMP.	FEATURES
S28-.005Mo	1.92	86	165	1400°C	Dimple Boat
S28-.005Ta	3.74	92	344	1600°C	
S28-.005W	3.81	131	499	1800°C	
S28-.010Mo	1.27	127	161	1400°C	
S28-.010Ta	2.69	132	355	1600°C	
S28-.010W	2.93	187	548	1800°C	

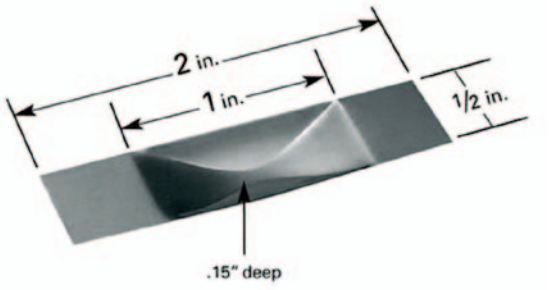


P/N	VOLTS	AMPS	WATTS	TEMP.
S29-.005Mo	2.10	198	416	1400°C
S29-.005Ta	4.50	221	994	1600°C
S29-.005W	4.29	316	1356	1800°C
S29-.010Mo	1.43	281	402	1400°C
S29-.010Ta	3.36	322	1082	1600°C
S29-.010W	3.30	451	1488	1800°C
S29-.015Ta	2.56	406	1039	1600°C



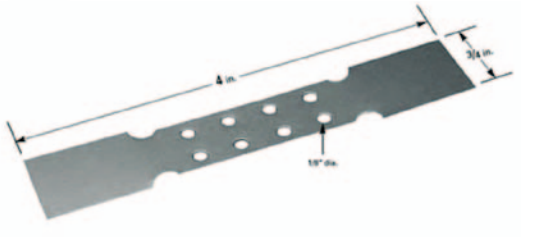
P/N	VOLTS	AMPS	WATTS	TEMP.
S30A-.005Ta	2.60	400	1040	1800°C
S30A-.005W	1.50	444	666	1800°C
S30A-.010Ta	1.44	296	427	1600°C
S30A-.010W	1.50	444	666	1800°C

P/N	VOLTS	AMPS	WATTS	TEMP.
S31A-.005Mo	0.66	75	50	1400°C
S31A-.005Ta	1.24	83	103	1600°C
S31A-.005W	2.00	166	332	1800°C
S31A-.010Mo	0.53	129	68	1400°C
S31A-.010Ta	0.98	119	117	1600°C
S31A-.010W	1.63	214	349	1800°C
S31A-.015Mo	0.55	173	95	1400°C
S31A-.015Ta	1.07	155	166	1600°C
S31A-.015W	1.40	261	365	1800°C

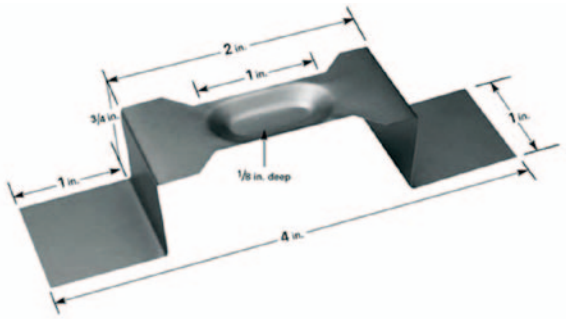


P/N	VOLTS	AMPS	WATTS	TEMP.
S32-.010W	2.38	738	1756	2000°C
Accommodates C1 and Co crucibles				

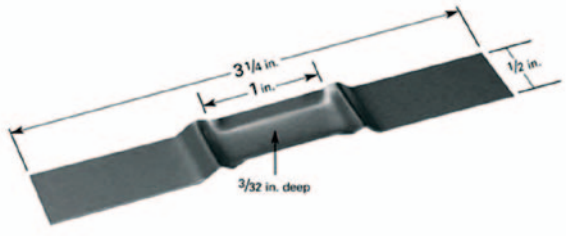
P/N	VOLTS	AMPS	WATTS	TEMP.
S33-.005Mo	1.46	94	137	1400°C
S33-.005Ta	3.27	94	307	1600°C
S33-.005W	3.26	144	469	1800°C



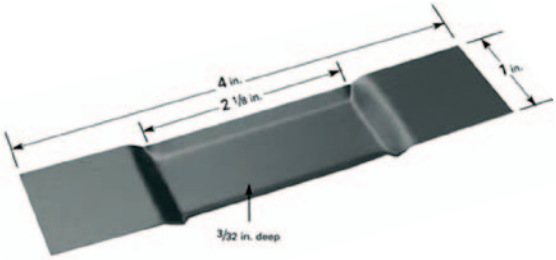
P/N	VOLTS	AMPS	WATTS	TEMP.
S34-.005Mo	1.70	123	209	1400°C
S34-.005Ta	3.82	135	516	1600°C
S34-.005W	3.46	181	626	1800°C
S34-.010Mo	1.25	169	211	1400°C
S34-.010Ta	2.75	177	487	1600°C
S34-.010W	2.66	259	689	1800°C



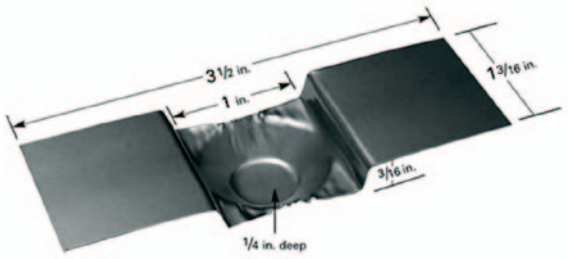
P/N	VOLTS	AMPS	WATTS	TEMP.
S35-.005Mo	1.44	87	125	1400°C
S35-.005Ta	3.10	91	282	1600°C
S35-.005W	3.37	140	472	1800°C
S35-.010Mo	1.05	124	130	1400°C
S35-.010Ta	2.13	134	285	1600°C
S35-.010W	2.26	207	468	1800°C



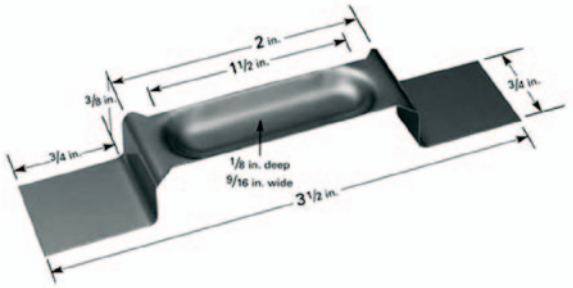
P/N	VOLTS	AMPS	WATTS	TEMP.
S36-.010Mo	1.33	251	334	1400°C
S36-.010Ta	2.98	250	745	1600°C
S36-.010W	3.01	391	1177	1800°C
S36-.015Ta	2.27	322	731	1600°C



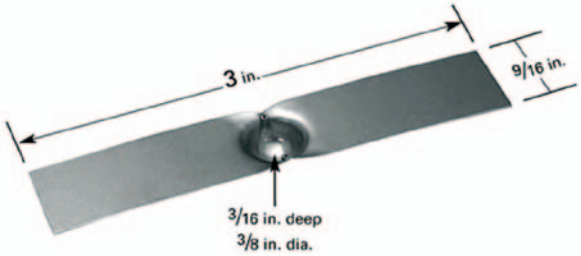
P/N	VOLTS	AMPS	WATTS	TEMP.
S37-.005Mo	1.84	201	370	1400°C
S37-.005Ta	4.26	222	946	1600°C
S37-.010Mo	1.30	289	376	1400°C
S37-.010Ta	3.21	319	1024	1600°C



P/N	VOLTS	AMPS	WATTS	TEMP.
S38-.005Mo	1.77	114	202	1400°C
S38-.005Ta	4.01	114	457	1600°C
S38-.005W	3.98	169	673	1800°C
S38-.010Mo	1.26	164	207	1400°C
S38-.010Ta	2.70	197	532	1600°C
S38-.010W	2.77	254	704	1800°C

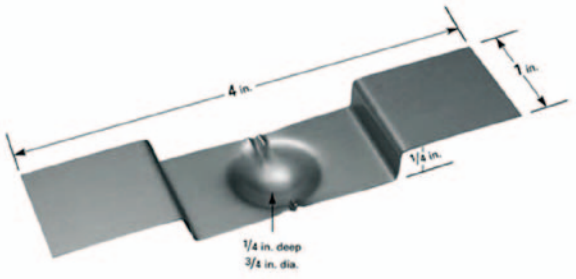


P/N	VOLTS	AMPS	WATTS	TEMP.
S39-.005Mo	1.32	100	132	1400°C
S39-.005Ta	2.72	106	288	1600°C
S39-.010Mo	0.90	157.95	141.68	1400°C
S39-.010Ta	1.95	165	322	1600°C

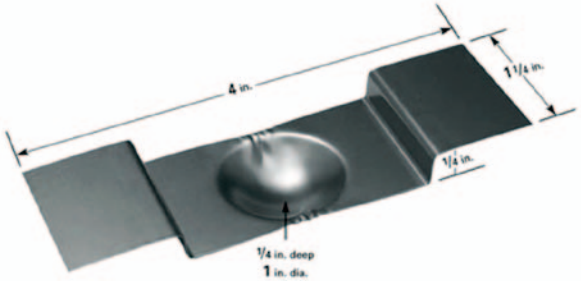


P/N	VOLTS	AMPS	WATTS	TEMP.
S40-.005Mo	1.39	105	146	1400°C
S40-.005Ta	2.61	120	313	1600°C
S40-.005W	2.71	155	420	1800°C
S40-.010Mo	0.92	149.42	138.16	1400°C
S40-.010Ta	2.01	156	314	1600°C

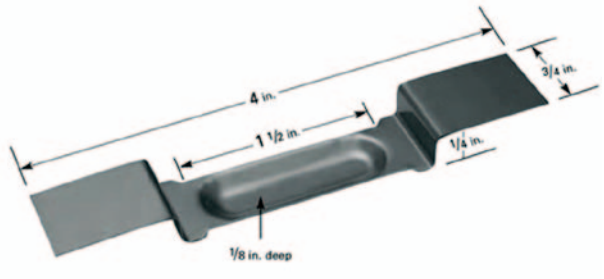
P/N	VOLTS	AMPS	WATTS	TEMP.
S42-.005W	3.67	188	690	1800°C
S42-.010Mo	1.58	249	393	1400°C
S42-.010Ta	3.35	281	941	1600°C
S42-.010W	2.82	269	759	1800°C
S42-.015Mo	1.27	310	394	1400°C
S42-.015Ta	2.61	328	856	1600°C
S42-.015W	2.57	508	1306	1800°C



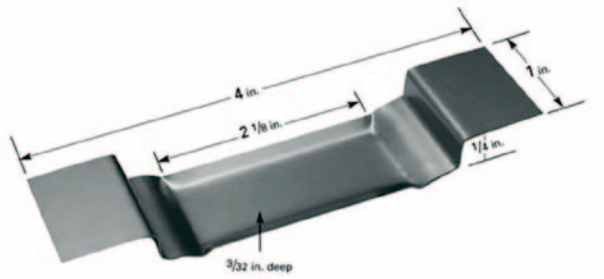
P/N	VOLTS	AMPS	WATTS	TEMP.
S43-.005W	4.59	372	1707	1800°C
S43-.010Mo	1.52	317	482	1400°C
S43-.010Ta	3.48	338	1176	1600°C
S43-.010W	3.53	531	1874	1800°C
S43-.015Mo	1.22	389	475	1400°C
S43-.015Ta	2.83	416	1177	1600°C
S43-.015W	2.91	654	1903	1800°C



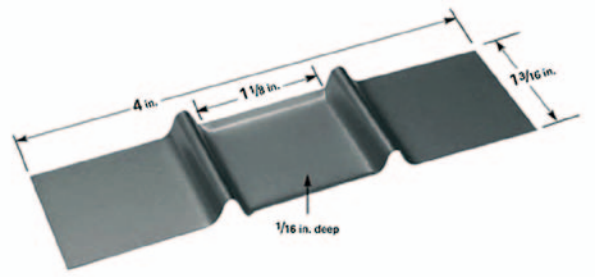
P/N	VOLTS	AMPS	WATTS	TEMP.
S44-.005Mo	2.05	117	240	1400°C
S44-.005Ta	3.80	115	437	1600°C
S44-.005W	3.73	182	679	1800°C
S44-.010Mo	1.33	170	226	1400°C
S44-.010Ta	2.90	178	516	1600°C
S44-.010W	2.87	260	746	1800°C
S44-.015Mo	1.06	207	219	1400°C
S44-.015Ta	2.38	220	524	1600°C
S44-.015W	2.31	327	755	1800°C



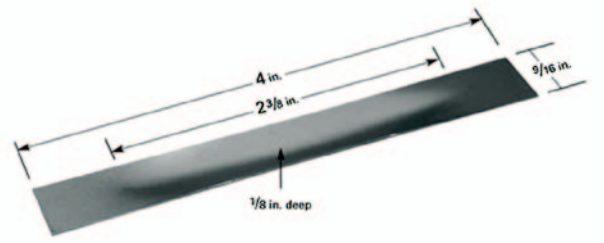
P/N	VOLTS	AMPS	WATTS	TEMP.
S45-.005Mo	2.11	176	371	1400°C
S45-.005Ta	4.60	189	869	1600°C
S45-.005W	4.41	276	1217	1800°C
S45-.010Mo	1.45	249	361	1400°C
S45-.010Ta	3.16	257	812	1600°C
S45-.010W	3.39	394	1336	1800°C
S45-.015Mo	1.29	310	400	1400°C
S45-.015Ta	2.55	320	816	1600°C
S45-.015W	2.72	503	1368	1800°C



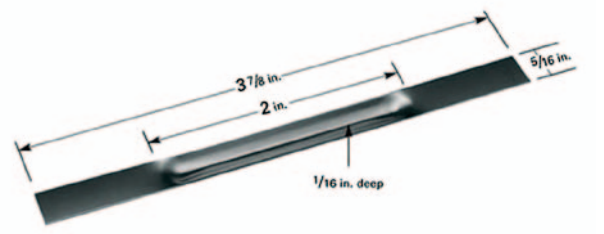
P/N	VOLTS	AMPS	WATTS	TEMP.
S46-.005Mo	2.10	207	435	1400°C
S46-.005Ta	4.87	221	1076	1600°C
S46-.005W	4.34	340	1476	1800°C
S46-.010Mo	1.49	293	437	1400°C
S46-.010Ta	3.20	306	979	1600°C
S46-.010W	3.34	485	1620	1800°C



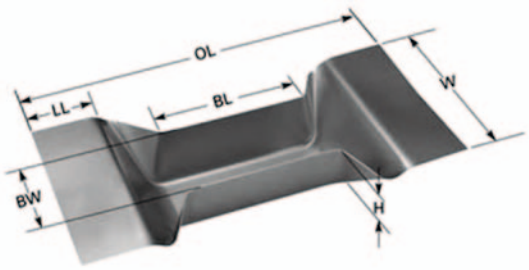
P/N	VOLTS	AMPS	WATTS	TEMP.
S47-.010Mo	1.18	142	168	1400°C
S47-.010Ta	2.59	144	373	1600°C
S47-.010W	2.87	212	608	1800°C
S47-.015Mo	1.00	179	179	1400°C
S47-.015Ta	2.06	190	391	1600°C
S47-.015W	2.18	287	626	1800°C
S47-.020Ta	1.91	210	401	1600°C
S47-.020W	2.00	333	666	1800°C



P/N	VOLTS	AMPS	WATTS	TEMP.
S48-.005W	3.67	81	297	1800°C
S48-.010Mo	1.24	75	93	1400°C
S48-.010Ta	2.41	81	195	1600°C
S48-.010W	2.82	115	324	1800°C

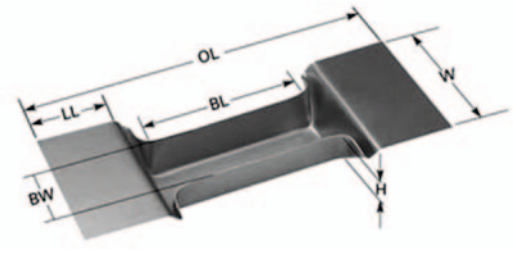


Folded Boats



P/N	BL	BW	H	OL	W	LL	VOL	MATERIAL
FB1	1.88	0.75	0.73	4.5	2.13	0.75	17cc	Available in 0.005, 0.010 & 0.015 Mo & Ta Tungsten on request
FB2	1.88	1.3	0.47	4.34	2.13	0.75	19cc	
FB3	3.75	1.0	0.50	6.16	2.13	0.82	31cc	
FB4	3.75	0.75	0.75	6.16	2.13	0.75	35cc	
Available on request: Al_2O_3 coated inside or Al_2O_3 barrier type								

All dimensions are in inch.



P/N	BL	BW	H	OL	W	LL	VOL	MATERIAL
FB10	0.66	0.45	0.43	1.42	1.25	0.38	2cc	Available in 0.005, 0.010 & 0.015 Mo & Ta Tungsten on request
FB11	1.25	0.38	0.31	2.56	1.00	0.56	3cc	
FB12	1.56	0.50	0.31	2.94	1.13	0.69	4cc	
Available on request: Al_2O_3 coated inside or Al_2O_3 barrier type								

All dimensions are in inch.

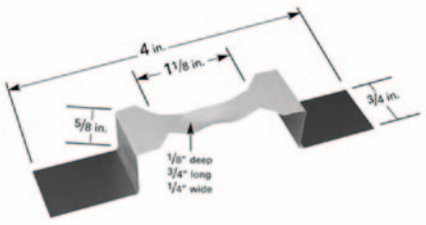
P/N	VOLTS	AMPS	WATTS	TEMP.
FB1-.005Mo	1.65	293	483	1400°C
FB1-.005Ta	3.78	339	1281	1600°C
FB1-.010Mo	1.21	413	500	1400°C
FB1-.010Ta	2.93	162	1354	1600°C
FB1-.015Mo	1.38	634	875	1400°C
FB1-.015Ta	2.57	641	1647	1600°C
FB2-.005Mo	1.90	320	608	1400°C
FB2-.005Ta	3.88	348	1350	1600°C
FB2-.010Mo	1.38	448	618	1400°C
FB2-.010Ta	2.77	491	1360	1600°C
FB2-.015Mo	1.16	547	635	1400°C
FB2-.015Ta	2.56	657	1682	1600°C
FB3-.005Mo	2.23	303	676	1400°C
FB3-.005Ta	4.60	301	1385	1600°C
FB3-.010Mo	1.60	431	690	1400°C
FB3-.010Ta	3.89	521	2027	1600°C
FB3-.015Mo	1.38	536	740	1400°C
FB3-.015Ta	3.73	736	2745	1600°C
FB4-.005Mo	2.18	300	654	1400°C
FB4-.005Ta	4.14	277	1147	1600°C
FB4-.010Mo	1.60	413	661	1400°C
FB4-.010Ta	3.64	495	1802	1600°C
FB4-.015Mo	1.72	663	1140	1400°C
FB4-.015Ta	3.15	646	2035	1600°C

P/N	VOLTS	AMPS	WATTS	TEMP.
FB10-.005Mo	0.75	166	125	1400°C
FB10-.005Ta	1.56	159	248	1600°C
FB10-.010Mo	0.66	265	175	1400°C
FB10-.010Ta	1.12	242	271	1600°C
FB10-.015Mo	0.68	351	237	1400°C
FB10-.015Ta	1.12	341	382	1600°C
FB11-.005Mo	1.11	118	131	1400°C
FB11-.005Ta	2.12	137	290	1600°C
FB11-.010Mo	0.76	186	141	1400°C
FB11-.010Ta	1.69	207	350	1600°C
FB11-.015Mo	0.71	243	173	1400°C
FB11-.015Ta	1.45	253	367	1600°C
FB12-.005Mo	1.20	143	172	1400°C
FB12-.005Ta	2.00	141	282	1600°C
FB12-.010Mo	0.88	211	185	1400°C
FB12-.010Ta	1.63	200	326	1600°C
FB12-.015Mo	0.83	272	227	1400°C
FB12-.015Ta	1.49	257	383	1600°C

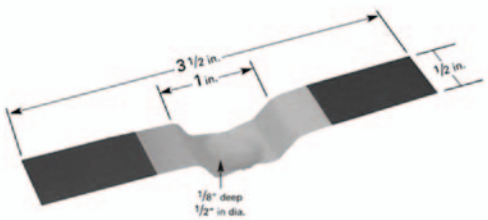
Alumina Coated Evaporation Sources

Alumina coated evaporation sources have been developed to replace alumina crucibles for some specific applications. The advantages of this type of evaporation source are 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 evaporation 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 do to the difference in heat conduction. The alumina is semi-conductor grade and is applied to the boat or basket by a plasma spray technique. Temperatures over 1850 °C should be avoided, and when an evaporation is effected the power should be reduced slightly to avoid over heating.

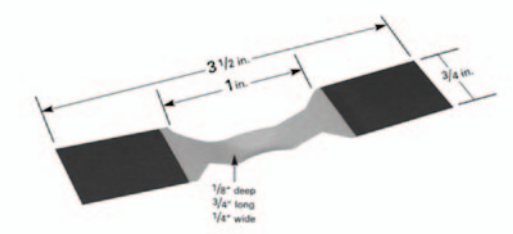
P/N	VOLTS	AMPS	WATTS	TEMP.
S1-AO-Mo	0.95	105	100	1200°C
S1-AO-W	1.00	106	106	1200°C



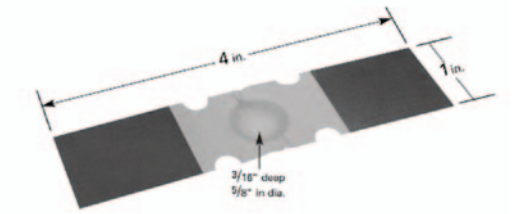
P/N	VOLTS	AMPS	WATTS	TEMP.
S2B-AO-Mo	1.12	141	158	1200°C
S2B-AO-W	1.13	141	159	1200°C



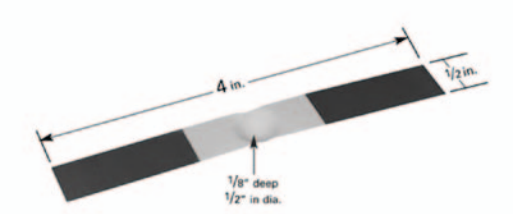
P/N	VOLTS	AMPS	WATTS	TEMP.
S3-AO-Mo	0.79	114	90	1200°C
S3-AO-W	0.83	117	97	1200°C



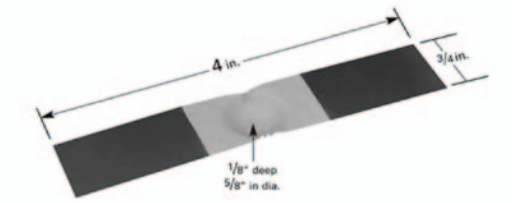
P/N	VOLTS	AMPS	WATTS	TEMP.
S8C-AO-Mo	1.31	253	331	1200°C
S8C-AO-W	1.27	257	326	1200°C



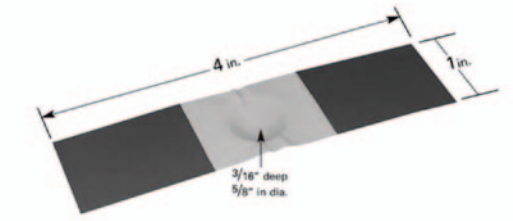
P/N	VOLTS	AMPS	WATTS	TEMP.
S9A-AO-Mo	1.21	130	157	1200°C
S9A-AO-W	1.17	125	146	1200°C



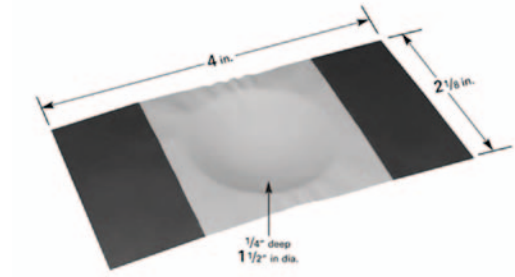
P/N	VOLTS	AMPS	WATTS	TEMP.
S9B-AO-Mo	1.34	201	269	1200°C
S9B-AO-W	1.29	190	245	1200°C



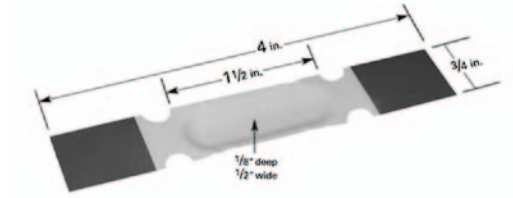
P/N	VOLTS	AMPS	WATTS	TEMP.
S9C-AO-Mo	1.14	248	283	1200°C
S9C-AO-W	1.35	268	362	1200°C



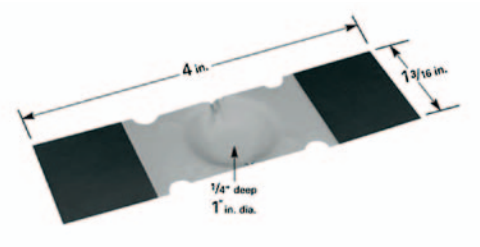
P/N	VOLTS	AMPS	WATTS	TEMP.
S9F-AO-Mo	1.50	586	879	1200°C
S9F-AO-W	1.40	635	889	1200°C



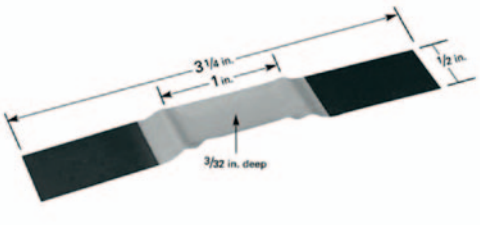
P/N	VOLTS	AMPS	WATTS	TEMP.
S21-AO-Mo	1.34	207	277	1200°C
S21-AO-W	1.47	204	300	1200°C



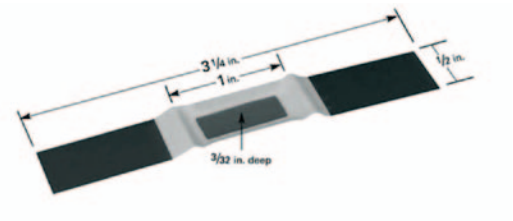
P/N	VOLTS	AMPS	WATTS	TEMP.
S29-AO-Mo	1.41	220	310	1200°C
S29-AO-W	1.34	294	394	1200°C



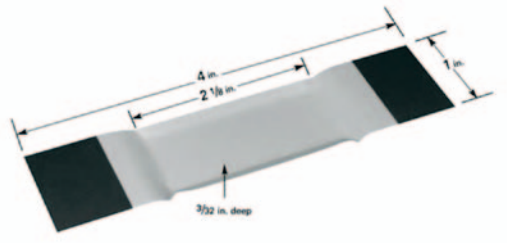
P/N	VOLTS	AMPS	WATTS	TEMP.
S35A-AO-Mo	1.05	144	151	1200°C
S35A-AO-W	0.95	136	129	1200°C



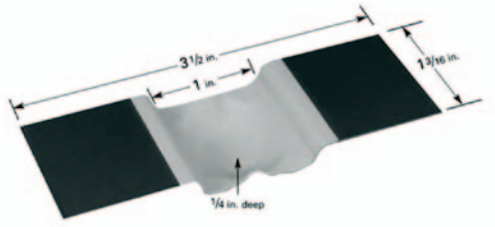
P/N	VOLTS	AMPS	WATTS	TEMP.
S35B-AO-Mo	0.90	137	123	1200°C
S35B-AO-W	0.89	130	116	1200°C
Evaporation area: 1/4 in. x 3/4 in.				



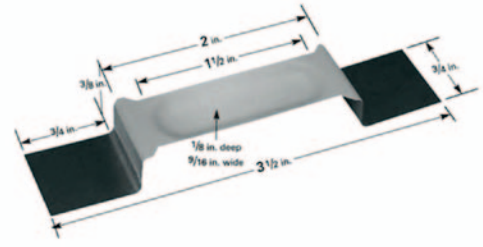
P/N	VOLTS	AMPS	WATTS	TEMP.
S36-AO-Mo	1.34	289	387	1200°C
S36-AO-W	1.25	268	335	1200°C



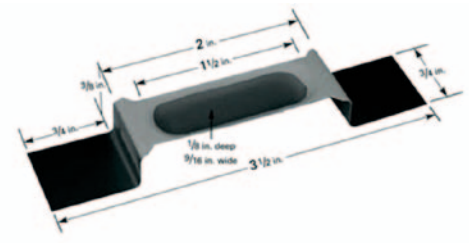
P/N	VOLTS	AMPS	WATTS	TEMP.
S37-AO-Mo	1.23	326	401	1200°C



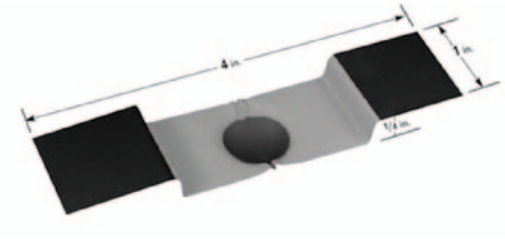
P/N	VOLTS	AMPS	WATTS	TEMP.
S38A-AO-Mo	1.22	181	221	1200°C
S38A-AO-W	1.20	169	203	1200°C



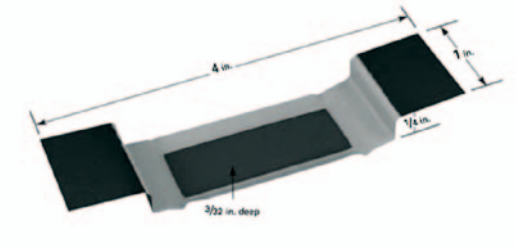
P/N	VOLTS	AMPS	WATTS	TEMP.
S38B-AO-Mo	1.04	167	174	1200°C
S38B-AO-W	1.04	156	162	1200°C



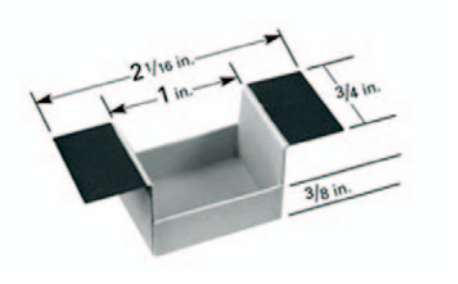
P/N	VOLTS	AMPS	WATTS	TEMP.
S42B-AO-Mo	1.35	262	354	1200°C
S42B-AO-W	1.41	245	345	1200°C
Evaporation area: 3/4 in. x 1/4 in.				



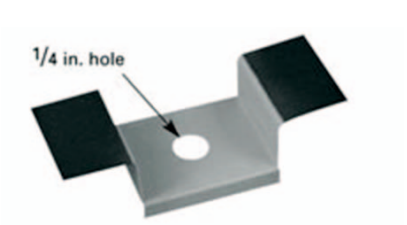
P/N	VOLTS	AMPS	WATTS	TEMP.
S45B-AO-Mo	1.27	264	335	1200°C
S45B-AO-W	1.43	264	378	1200°C
Evaporation area: 5/8 in. x 1. 3/4 in.				



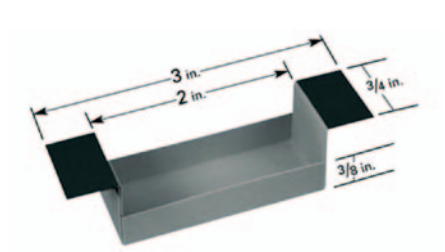
P/N	VOLTS	AMPS	WATTS	TEMP.
SB3-AO-TA	1.54	295	454	1200°C
Al_2O_3 coating 0.010 Ta boat				



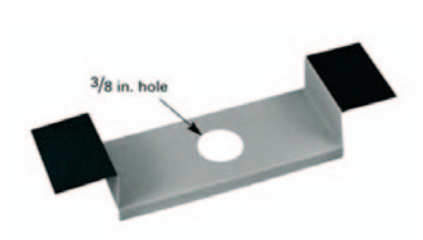
P/N	VOLTS	AMPS	WATTS	TEMP.
SB3A-AO-Ta	1.49	345	514	1200°C
Al_2O_3 coating 0.005 Ta boat Both under and top surfaces coated				



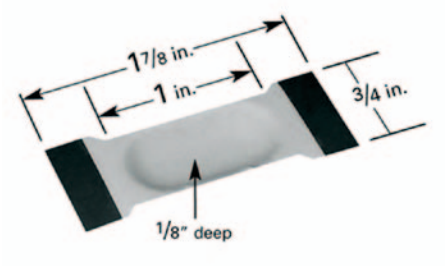
P/N	VOLTS	AMPS	WATTS	TEMP.
SB5-AO-Ta	2.20	314	691	1200°C
Al_2O_3 coating 0.010 Ta boat				



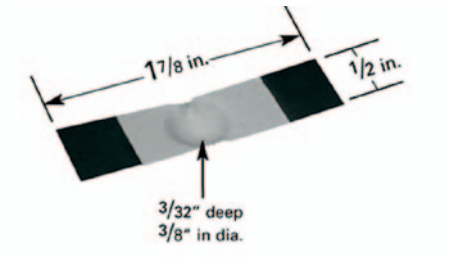
P/N	VOLTS	AMPS	WATTS	TEMP.
SB5A-AO	1.63	334	544	1200°C
Al_2O_3 coating 0.005 Ta boat Both under and top surfaces coated				



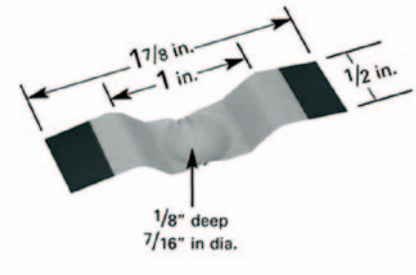
P/N	VOLTS	AMPS	WATTS	TEMP.
ME3-AO-Mo	0.86	151	130	1200°C



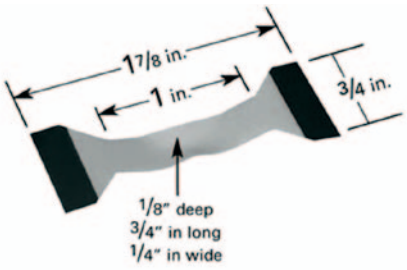
P/N	VOLTS	AMPS	WATTS	TEMP.
ME4-AO-Mo	0.83	116	96	1200°C
Al_2O_3 coating 0.005 Mo boat				



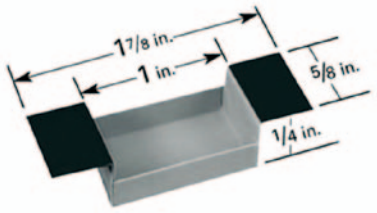
P/N	VOLTS	AMPS	WATTS	TEMP.
ME6B-AO-Mo	0.84	106	89	1200°C
Al_2O_3 coating 0.005 Mo boat				



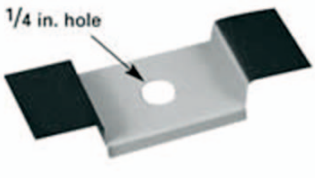
P/N	VOLTS	AMPS	WATTS	TEMP.
ME9-AO-Mo	0.80	83	66	1200°C
Al_2O_3 coating 0.005 Mo boat				



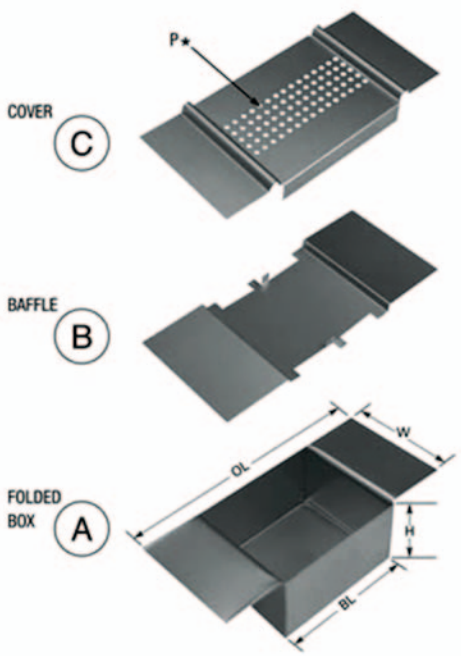
P/N	VOLTS	AMPS	WATTS	TEMP.
ME22-AO-Ta	1.30	259	337	1200°C
Al_2O_3 coating 0.005 Mo boat				



P/N	VOLTS	AMPS	WATTS	TEMP.
ME22A-AO	1.09	293	319	1200°C
Al_2O_3 coating 0.005 Ta boat Both under and top surfaces coated				



P/N	BL	W	H	OL	P	VOL.
SB-7A-AO-.010Mo	1.75	1	0.75	3.5	0.06 60 holes 4 x 15 rows	21cc
SB-7A-AO-.010Ta						
SB-7C-AO-.005Mo						
SB-7C-AO-.005Ta						
SB-8A-AO-.010Mo	1.75	1.5	1	3.5	0.06 70 holes 5 x 15 rows	43cc
SB-8A-AO-.010Ta						
SB-8C-AO-.005Mo						
SB-8C-AO-.005Ta						
SB-9A-AO-.010Mo	3.0	1.38	0.75	4.75	0.06 115 holes 5 x 23 rows	50cc
SB-9A-AO-.010Ta						
SB-9C-AO-.005Mo						
SB-9C-AO-.005Ta						
SB-10A-AO-.010Mo	2.75	2	1.25	4	0.12 65 holes 5 x 13 rows	112cc
SB-10A-AO-.010Ta						
SB-10C-AO-.005Mo						
SB-10C-AO-.005Ta						



All dimensions are in inch.

P* single hole sizes available on request.

	STANDARD MATERIALS	
	Standard	Al_2O_3 coated
C	0.005 / Mo or Ta	0.005 or 0.010 / Mo or Ta
B	0.005 / Mo or Ta	Normally not used
A	0.005 or 0.010 / Mo or Ta	0.010 / Mo or Ta

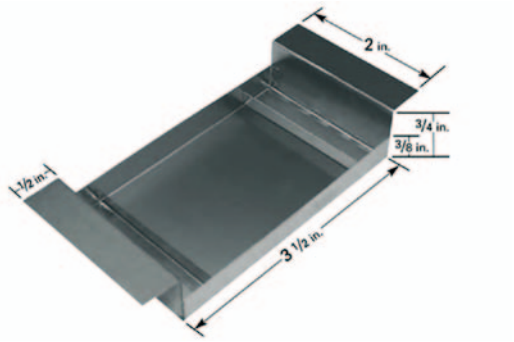
ORDER INFORMATION

EXAMPLE: SB-10-C-.010 Ta-AO, MODIFIED, $^3/_4$ DIA. HOLE IN CENTER

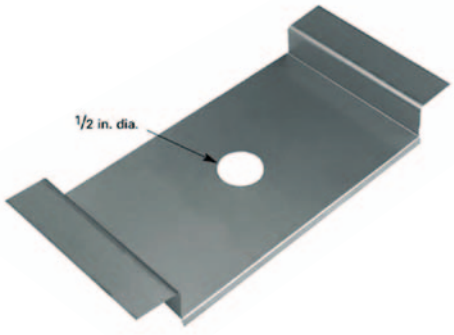
BASIC PART NUMBER
PART (COVER, BAFFLE BOX)
MATERIAL THICKNESS & TYPE
USE ONLY FOR AL_2O_3 COATED PARTS
LIST ANY MODIFICATIONS

Special Tantalum Boats

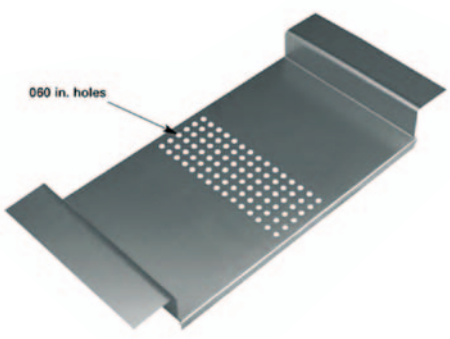
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-1	4.14	707	2927	1600°C
0.010 Ta baffled				



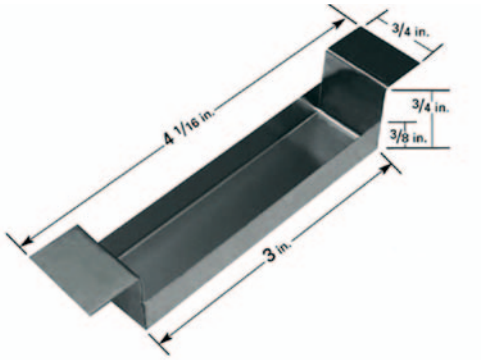
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-1A	3.20	749	2397	1600°C
0.005 Ta baffled				



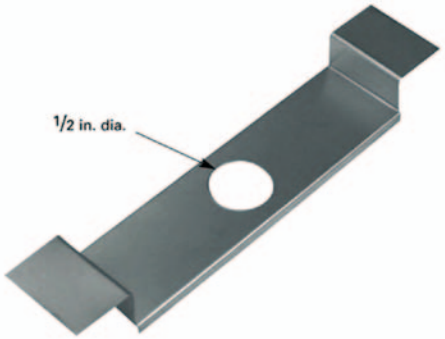
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-1B	0	0	0	N/A
0.005 Ta baffled				



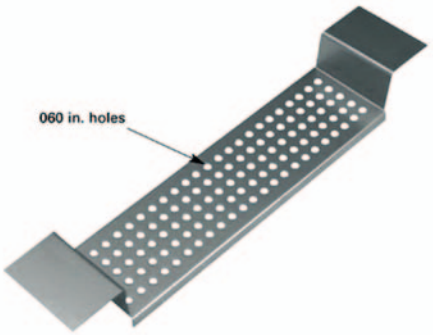
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-2	3.70	388	1436	1600°C
0.010 Ta				



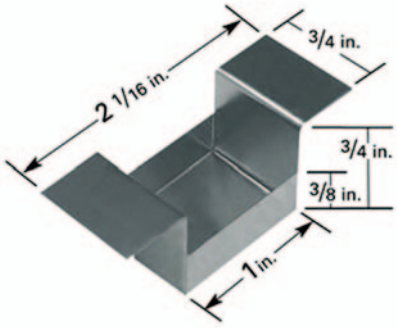
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-2A	2.91	398	1158	1600°C
0.005 Ta				



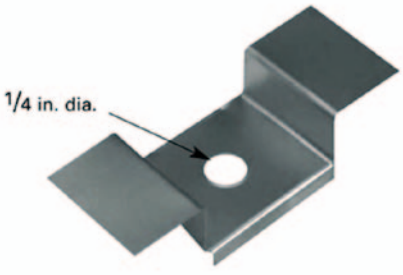
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-2B	0	0	0	N/A
0.005 Ta				



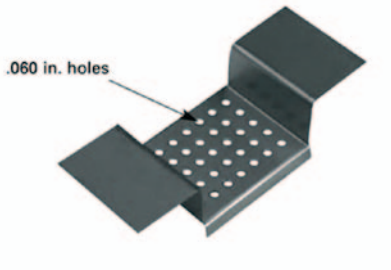
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-3	2.08	366	761	1600°C
0.010 Ta				



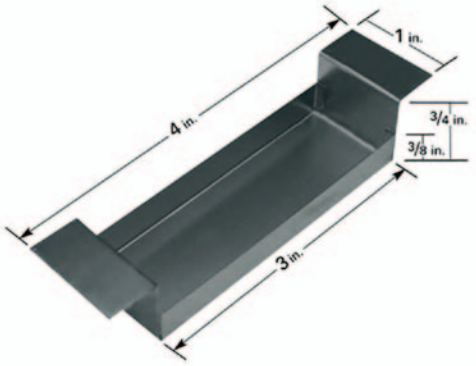
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-3A	1.63	380	619	1600°C
0.005 Ta				



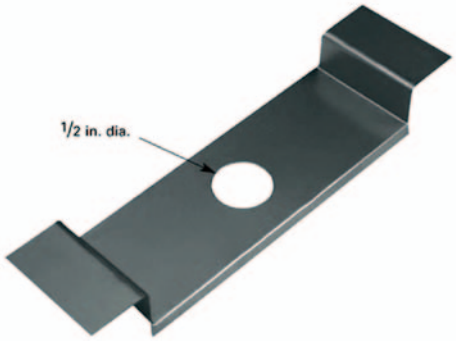
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-3B	0	0	0	N/A
0.005 Ta				



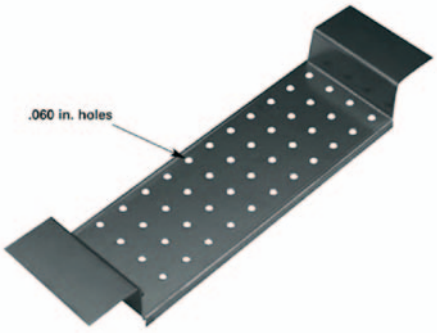
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-4	3.57	438	1564	1600°C
0.010 Ta				



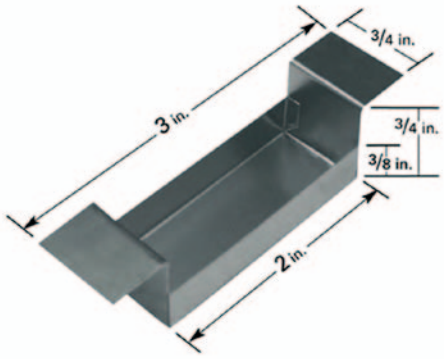
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-4A	2.83	479	1356	1600°C
0.005 Ta				



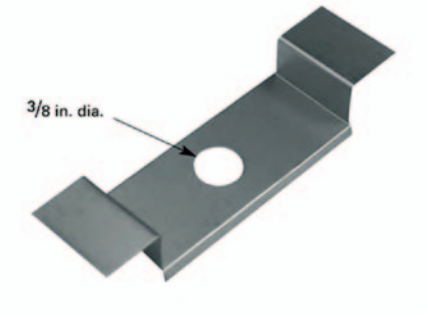
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-4B	0	0	0	N/A
0.005 Ta				



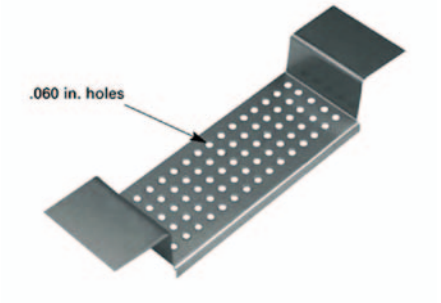
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-5	2.96	371	1098	1600°C
0.010 Ta				



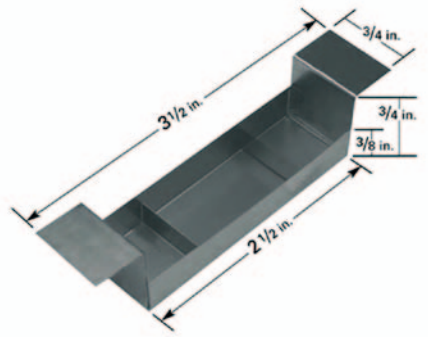
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-5A	2.12	380	806	1600°C
0.005 Ta				



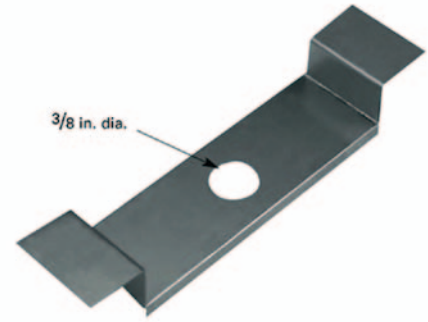
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-5B	0	0	0	N/A
0.005 Ta				



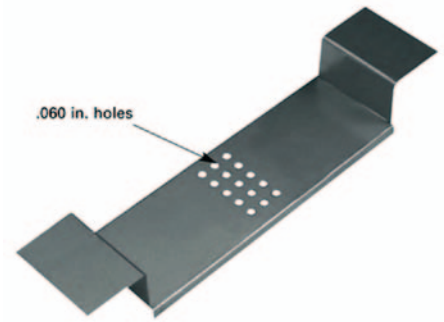
P/N	VOLTS	AMPS	WATTS	TEMP.
SB-6	3.58	280	1002	1600°C
0.005 Ta				



P/N	VOLTS	AMPS	WATTS	TEMP.
SB-6A	2.69	310	834	1600°C
0.005 Ta				



P/N	VOLTS	AMPS	WATTS	TEMP.
SB-6B	0	0	0	N/A
0.005 Ta				

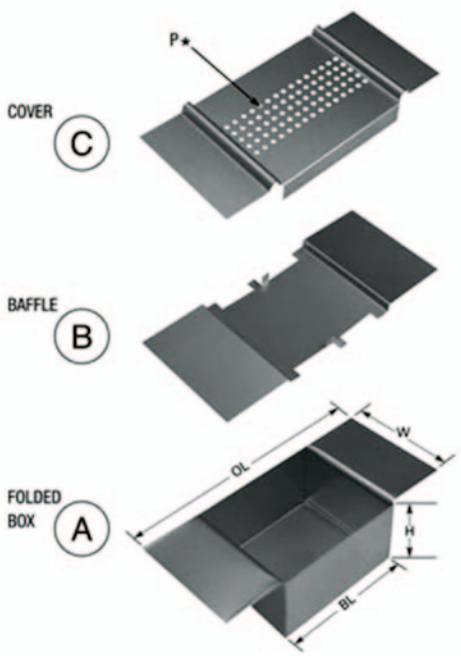


Folded Baffled Box Sources

P/N	VOLTS	AMPS	WATTS	TEMP.
SB-7A-.005Mo	1.21	547	662	1400°C
SB-7A-.005Ta	2.28	572	1304	1600°C
SB-7A-.010Mo	1.08	705	761	1400°C
SB-7A-.010Ta	2.10	680	1428	1600°C
SB-7B-.005Mo	1.21	547	662	1400°C
SB-7B-.005Ta	2.28	572	1304	1600°C
SB-7C-.005Mo	1.21	547	662	1400°C
SB-7C-.005Ta	2.28	572	1304	1600°C
SB-8A-.005Mo	1.44	850	1224	1400°C
SB-8A-.005Ta	2.51	880	2209	1600°C
SB-8A-.010Mo	1.39	1042	1448	1400°C
SB-8A-.010Ta	2.36	115	2631	1600°C
SB-8B-.005Mo	1.44	850	1224	1400°C
SB-8B-.005Ta	2.51	880	2209	1600°C
SB-8C-.005Mo	1.44	850	1224	1400°C
SB-8C-.005Ta	2.51	880	2209	1600°C

P/N	VOLTS	AMPS	WATTS	TEMP.
SB-9A-.005Mo	1.87	731	1367	1400°C
SB-9A-.005Ta	3.44	750	2580	1600°C
SB-9A-.010Mo	1.62	890	1442	1400°C
SB-9A-.010Ta	3.40	998	3393	1600°C
SB-9B-.005Mo	1.87	731	1367	1400°C
SB-9B-.005Ta	3.44	750	2580	1600°C
SB-9C-.005Mo	1.87	731	1367	1400°C
SB-9C-.005Ta	3.44	750	2580	1600°C
SB-10A-.005Mo	2.11	1222	2578	1400°C
SB-10A-.005Ta	3.66	1220	4465	1600°C
SB-10A-.010Mo	2.02	1530	3091	1400°C
SB-10A-.010Ta	3.37	1550	5224	1600°C
SB-10B-.005Mo	2.11	1222	2578	1400°C
SB-10B-.005Ta	3.66	1220	4465	1600°C
SB-10C-.005Mo	2.11	1222	2578	1400°C
SB-10C-.005Ta	3.66	1220	4465	1600°C

P/N	BL	W	H	OL	P	VOL.
SB-7	1.75	1	0.75	3.5	0.06 60 holes 4 x 15 rows	21cc
SB-8	1.75	1.5	1	3.5	0.06 70 holes 5 x 15 rows	43cc
SB-9	3.0	1.38	0.75	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



All dimensions are in inch.

P* single hole sizes available on request.

	STANDARD MATERIALS	
	Standard	Al_2O_3 coated
C	0.005 / Mo or Ta	0.005 or 0.010 / Mo or Ta
B	0.005 / Mo or Ta	Normally not used
A	0.005 or 0.010 / Mo or Ta	0.010 / Mo or Ta

ORDER INFORMATION

EXAMPLE: SB-10-C-.010 Ta-AO, MODIFIED, $^3/_4$ DIA. HOLE IN CENTER

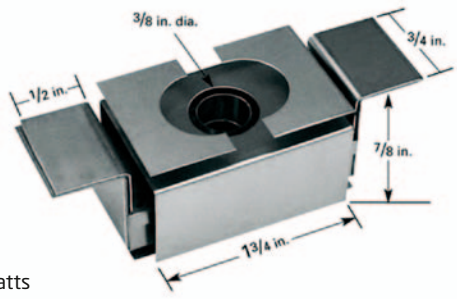
BASIC PART NUMBER
PART (COVER, BAFFLE BOX)
MATERIAL THICKNESS & TYPE
USE ONLY FOR AL_2O_3 COATED PARTS
LIST ANY MODIFICATIONS

Baffled Box Sources for SiO, ZnS

The "Baffled Box" Silicon Monoxide Source, SiO source, has proven to be an extremely successful method of depositing Silicon Monoxide. Source material is positioned in the boat within separate cavities, when heated it follows an indirect path through a series of baffles and then out of the exhaust chimney. The substrate cannot see the bulk material at any time. This essentially eliminates any chance of spitting and streaming which causes pinhole type defects. Many of the sources shown are available with up, down or horizontal exhaust ports. Custom fabrication and larger volume sources to fit your specific process needs are available upon request.

P/N	VOLTS	AMPS	WATTS	TEMP.
SM-8	1.08	255	275	1200°C

3,5 GRAM



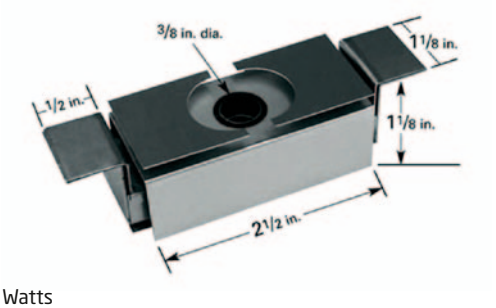
500 Watts

P/N	VOLTS	AMPS	WATTS	TEMP.
SM-9	1.00	242	242	1200°C

The SM-9 has the same dimensions as the SM-8 shown above. The internal baffles are reversed allowing the source to be mounted in an inverted position, exhaust port pointing down.

5 GRAM

P/N	VOLTS	AMPS	WATTS	TEMP.
SM-10	1.25	226	282	1200°C



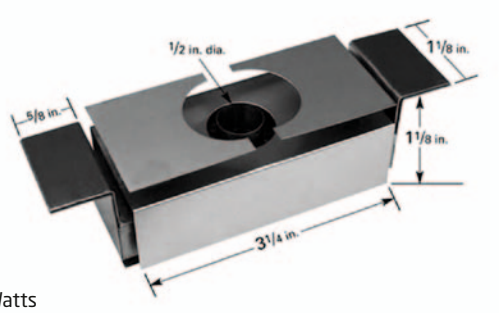
600 Watts

P/N	VOLTS	AMPS	WATTS	TEMP.
SM-11	1.26	236	297	1200°C

The SM-11 has the same dimensions as the SM-10 shown above. The internal baffles are reversed allowing the source to be mounted in an inverted position, exhaust port pointing down.

10 GRAM

P/N	VOLTS	AMPS	WATTS	TEMP.
SM-12	1.36	283	385	1200°C



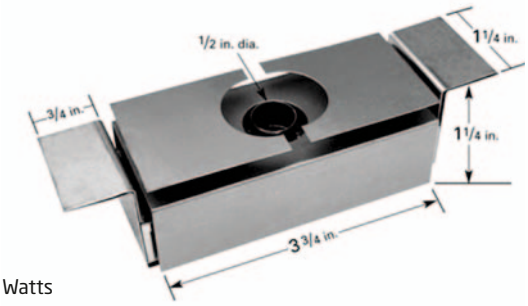
750 Watts

P/N	VOLTS	AMPS	WATTS	TEMP.
SM-13	1.60	318	509	1200°C

The SM-13 has the same dimensions as the SM-12 shown above. The internal baffles are reversed allowing the source to be mounted in an inverted position, exhaust port pointing down.

20 GRAM

P/N	VOLTS	AMPS	WATTS	TEMP.
SM-14	1.66	340	564	1200°C



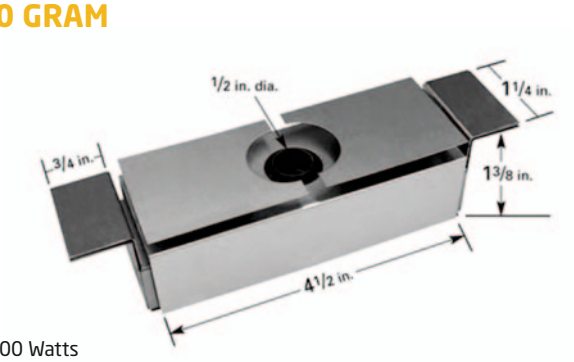
950 Watts

P/N	VOLTS	AMPS	WATTS	TEMP.
SM-15	1.70	349	593	1200°C

The SM-15 has the same dimensions as the SM-14 shown above. The internal baffles are reversed allowing the source to be mounted in an inverted position, exhaust port pointing down.

40 GRAM

P/N	VOLTS	AMPS	WATTS	TEMP.
SM-16	2.06	357	735	1200°C



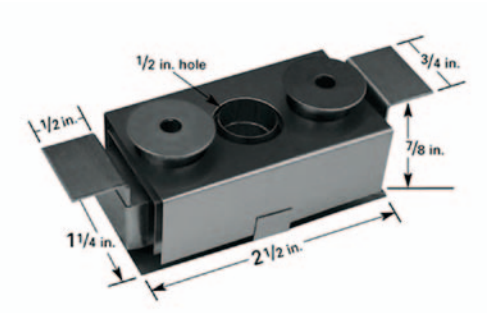
1100 Watts

P/N	VOLTS	AMPS	WATTS	TEMP.
SM-17	1.86	327	608	1200°C

The SM-17 has the same dimensions as the SM-16 shown above. The internal baffles are reversed allowing the source to be mounted in an inverted position, exhaust port pointing down.

6.5 GRAM

P/N	VOLTS	AMPS	WATTS	TEMP.
SO-10	1.40	257	360	1200°C

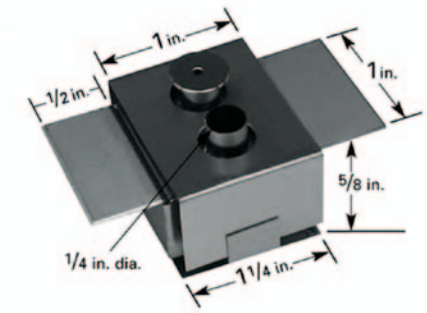


P/N	VOLTS	AMPS	WATTS	TEMP.
SO-11	1.40	256	358	1200°C

The SO-11 has the same dimensions as the SO-10 shown above, except exhaust port is at bottom of box, pointing down.

1.5 GRAM

P/N	VOLTS	AMPS	WATTS	TEMP.
SO-20	0.86	333	286	1200°C

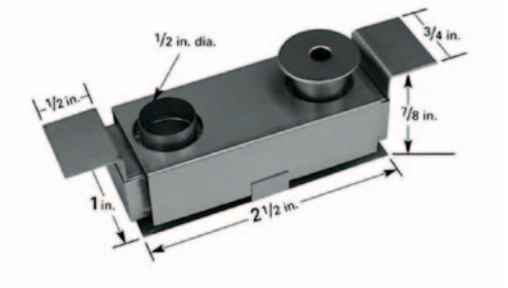


P/N	VOLTS	AMPS	WATTS	TEMP.
SO-21	0.91	328	298	1200°C

The SO-21 has the same dimensions as the SO-20 shown above, except exhaust port is at bottom of box, pointing down.

P/N	VOLTS	AMPS	WATTS	TEMP.
SO-22	1.34	246	330	1200°C

6.5 GRAM

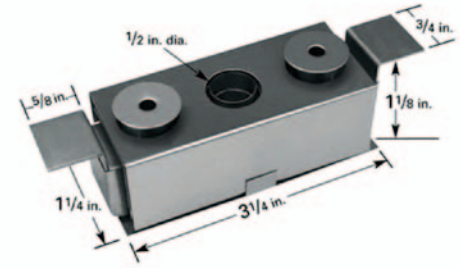


P/N	VOLTS	AMPS	WATTS	TEMP.
SO-23	1.31	236	309	1200°C

The SO-23 has the same dimensions as the SO-22 shown above, except exhaust port is at bottom of box, pointing down.

P/N	VOLTS	AMPS	WATTS	TEMP.
SO-24	1.67	264	441	1200°C

13 GRAM

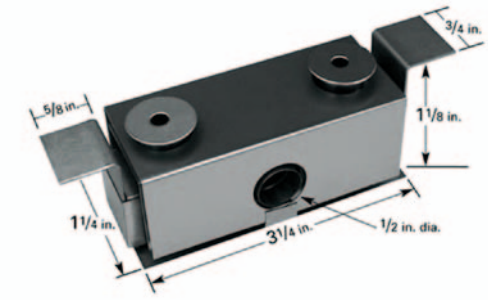


P/N	VOLTS	AMPS	WATTS	TEMP.
SO-25	1.58	272	430	1200°C

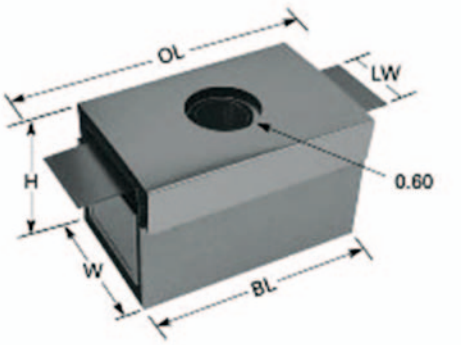
The SO-25 has the same dimensions as the SO-24 shown above, except exhaust port is at bottom of box, pointing down.

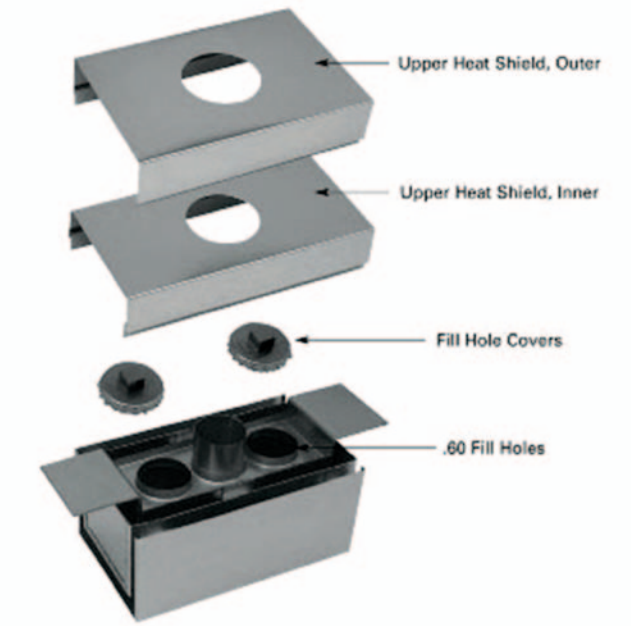
P/N	VOLTS	AMPS	WATTS	TEMP.
SO-26	1.62	271	439	1200°C

13 GRAM



P/N	VOLTS	AMPS	WATTS	TEMP.
S0-32	1.23	217	267	1200°C
S0-34	1.27	289	367	1200°C
S0-36	1.30	373	485	1200°C
S0-38	1.43	447	640	1200°C





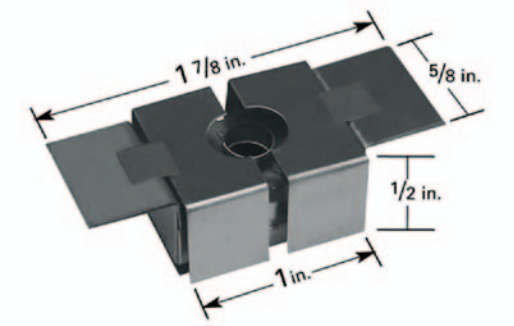
P/N	LH	BL	W	H	OL	LW	VOL.	MATERIAL
S0-32	1 1/4	2.88	1.80	1.79	4	1.0	20cc	Ta : heater & fill hole covers Nb : lower heat shields Mo : upper heat shields
S0-34	2	2.88	1..80	2.42	4	1.0	40cc	
S0-36	2	2.88	2.30	2.41	4	1.5	60cc	
S0-38	3	2.88	2.30	3.42	4	1.5	90cc	
Available on request: down or side evaporation source								

All dimensions are in inch.

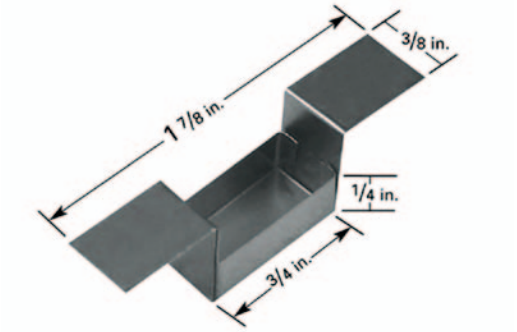
Microelectronic Sources Tungsten - Tantalum - Molybdenum

SOURCES FOR ROTARY HOLDERS AND SMALL SYSTEMS

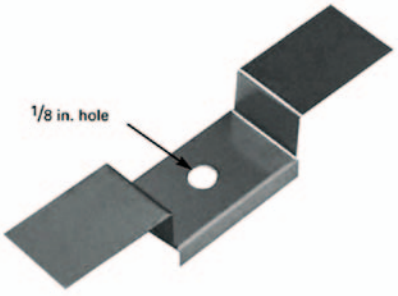
P/N	VOLTS	AMPS	WATTS	TEMP.
ME1	1.45	266	386	1600°C



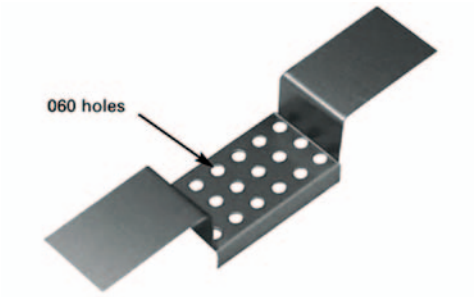
P/N	VOLTS	AMPS	WATTS	TEMP.
ME2	2.52	141	355	1600°C
0.005 Ta				



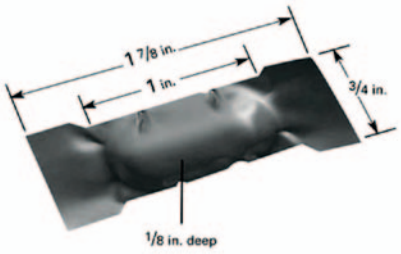
P/N	VOLTS	AMPS	WATTS	TEMP.
ME2A	1.74	176	306	1600°C
0.005 Ta				



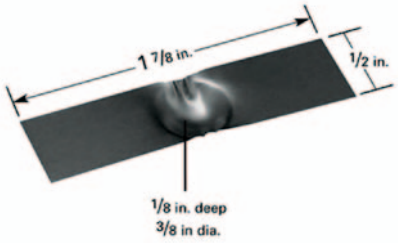
P/N	VOLTS	AMPS	WATTS	TEMP.
ME2B	0	0	0	N/A
0.005 Ta				



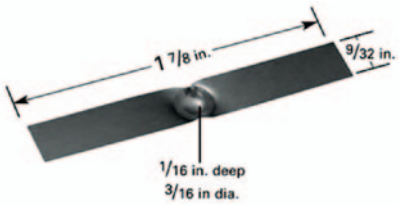
P/N	VOLTS	AMPS	WATTS	TEMP.
ME3-.005Mo	0.94	150	141	1400°C
ME3-.005Ta	1.77	138	244	1600°C
ME3-.005W	2.00	202	404	1800°C



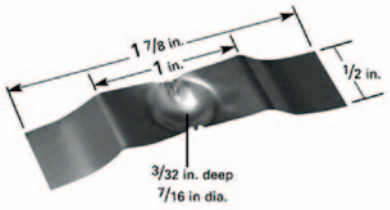
P/N	VOLTS	AMPS	WATTS	TEMP.
ME4-.005Mo	0.94	93	87	1400°C
ME4-.005Ta	1.50	98	147	1600°C
ME4-.005W	1.83	143	262	1800°C



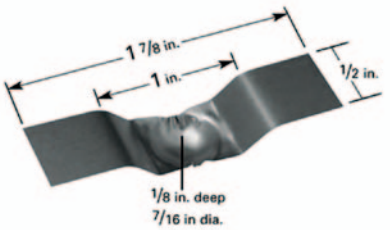
P/N	VOLTS	AMPS	WATTS	TEMP.
ME5-.005Mo	0.85	58	49	1400°C
ME5-.005Ta	1.40	55	77	1600°C
ME5-.005W	1.69	80	135	1800°C



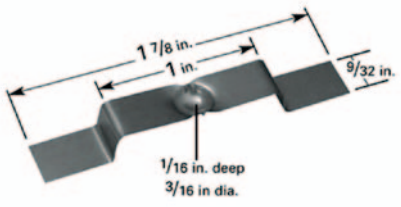
P/N	VOLTS	AMPS	WATTS	TEMP.
ME6A-.005Mo	0.85	102	87	1400°C
ME6A-.005Ta	1.85	95	176	1600°C
ME6A-.005W	1.83	145	265	1800°C



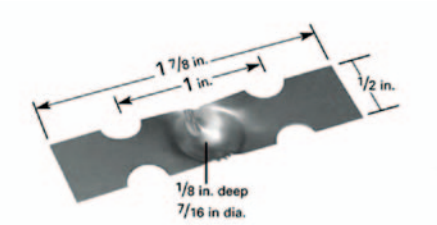
P/N	VOLTS	AMPS	WATTS	TEMP.
ME6B-.005Mo	0.90	97	87	1400°C
ME6B-.005Ta	1.73	96	166	1600°C
ME6B-.005W	1.88	144	271	1800°C



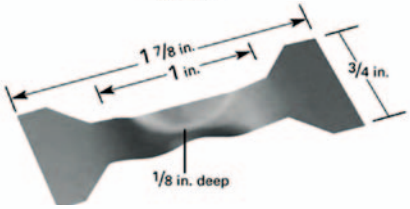
P/N	VOLTS	AMPS	WATTS	TEMP.
ME7-.005Mo	1.12	53	59	1400°C
ME7-.005Ta	1.72	49	84	1600°C
ME7-.005W	2.03	76	154	1800°C



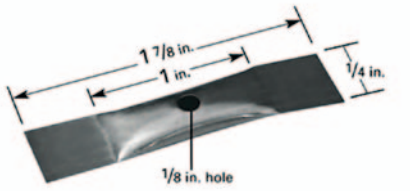
P/N	VOLTS	AMPS	WATTS	TEMP.
ME8-.005Mo	1.04	79	82	1400°C
ME8-.005Ta	2.16	93	201	1600°C
ME8-.005W	2.57	129	332	1800°C



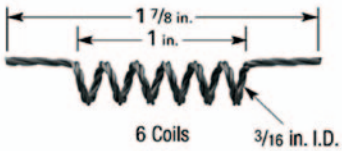
P/N	VOLTS	AMPS	WATTS	TEMP.
ME9-.005Mo	0.80	72	58	1400°C
ME9-.005Ta	1.48	67	99	1600°C
ME9-.005W	1.55	97	150	1800°C



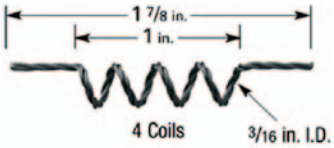
P/N	VOLTS	AMPS	WATTS	TEMP.
ME10-.005Ta	1.07	131	140	1600°C



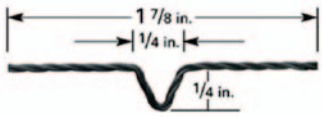
P/N	VOLTS	AMPS	WATTS	TEMP.
ME11-.030W	3.59	25	90	1800°C
ME11-3X.025W	3.13	44	138	1800°C



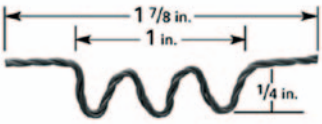
P/N	VOLTS	AMPS	WATTS	TEMP.
ME12-.030W	2.47	27	67	1800°C
ME12-3X.025W	2.30	47	108	1800°C



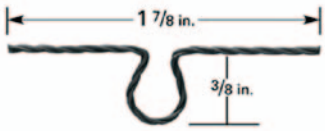
P/N	VOLTS	AMPS	WATTS	TEMP.
ME13A-.030W	1.25	33	41	1800°C
ME13A-3X.025W	1.08	61	66	1800°C



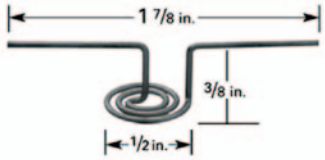
P/N	VOLTS	AMPS	WATTS	TEMP.
ME13B-.030W	1.95	27	53	1800°C
ME13B-3X.025W	1.68	52	87	1800°C



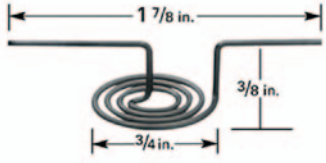
P/N	VOLTS	AMPS	WATTS	TEMP.
ME13C-.030W	1.95	26	51	1800°C
ME13C-3X.025W	1.56	53	83	1800°C



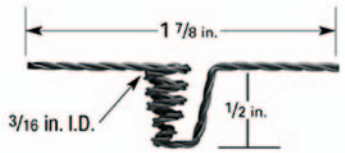
P/N	VOLTS	AMPS	WATTS	TEMP.
ME14-.030W	3.21	24	77	1800°C
ME14-.040W	2.90	36	104	1800°C



P/N	VOLTS	AMPS	WATTS	TEMP.
ME15-.030W	4.18	23	96	1800°C
ME15-.040W	3.63	34	123	1800°C

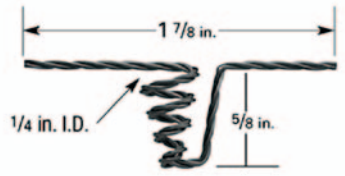


P/N	VOLTS	AMPS	WATTS	TEMP.
ME16A-.030W	2.48	23	57	1800°C
ME16A-3X.025W	2.30	39	90	1800°C



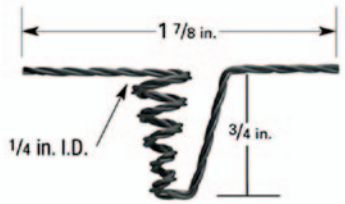
5 Coils

P/N	VOLTS	AMPS	WATTS	TEMP.
ME16B-.030W	2.90	23	67	1800°C
ME16B-3X.025W	2.66	42	112	1800°C



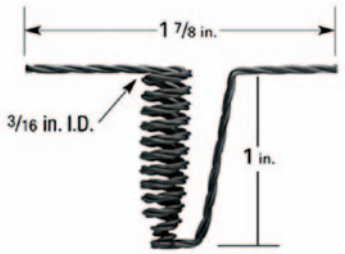
4 Coils

P/N	VOLTS	AMPS	WATTS	TEMP.
ME16C-.030W	3.77	23	87	1800°C
ME16C-3X.025W	3.54	43	152	1800°C



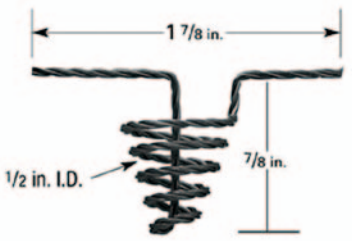
5 Coils

P/N	VOLTS	AMPS	WATTS	TEMP.
ME16D-.030W	5.96	21	125	1800°C
ME16D-3X.025W	5.51	40	220	1800°C

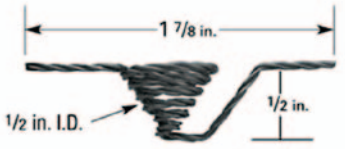


12 Coils

P/N	VOLTS	AMPS	WATTS	TEMP.
ME16E-.040W	4.25	32	136	1800°C
ME16E-3X.025W	5.00	44	220	1800°C

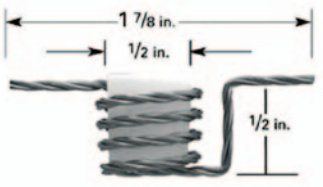


P/N	VOLTS	AMPS	WATTS	TEMP.
ME17-.030W	4.93	22	108	1800°C
ME17-3X.025W	4.57	40	183	1800°C

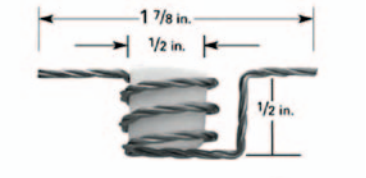


6 Coils

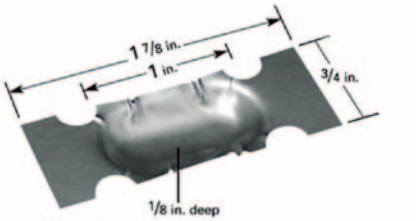
P/N	VOLTS	AMPS	WATTS	TEMP.
ME18A-3X.025W	6.56	48	315	1800°C
ME18A-3X.030W	5.00	55	275	1800°C



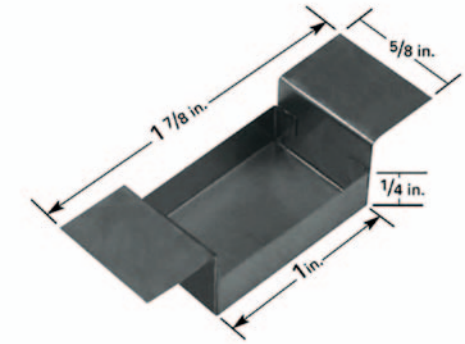
P/N	VOLTS	AMPS	WATTS	TEMP.
ME18B-3X.025W	4.70	43	202	1800°C
ME18B-3X.030W	4.25	56	238	1800°C



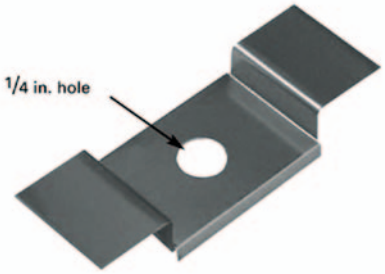
P/N	VOLTS	AMPS	WATTS	TEMP.
ME21-.005Mo	0.94	147	138	1400°C
ME21-.005Ta	1.75	141	247	1600°C
ME21-.005W	1.96	213	417	1800°C



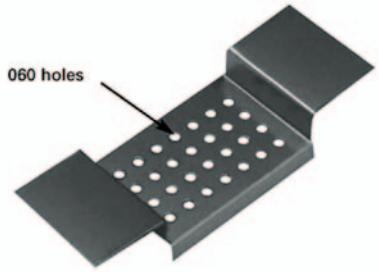
P/N	VOLTS	AMPS	WATTS	TEMP.
ME22	1.87	196	367	1600°C
0.005 Ta				



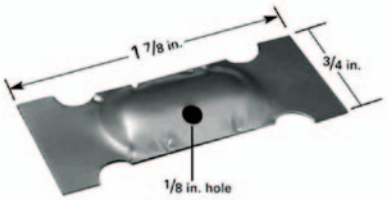
P/N	VOLTS	AMPS	WATTS	TEMP.
ME22A	1.45	265	384	1600°C
0.005 Ta				



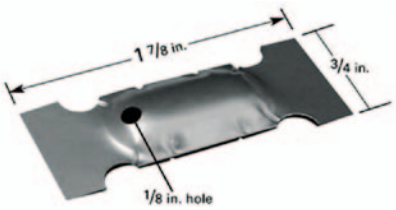
P/N	VOLTS	AMPS	WATTS	TEMP.
ME22B	1.09	293	319	1200°C
0.005 Ta				



P/N	VOLTS	AMPS	WATTS	TEMP.
ME23-.005Mo	0.79	251	198	1400°C
ME23-.005Ta	1.51	215	325	1600°C
ME23-.005W	1.40	327	458	1800°C
Covered boat source				

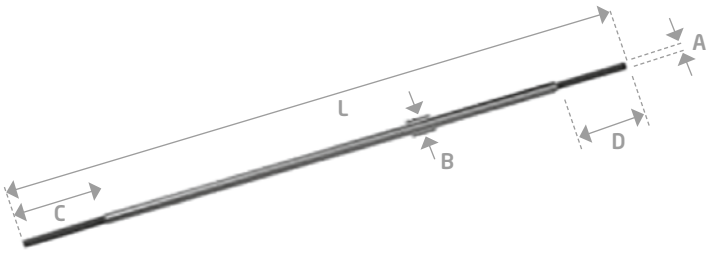


P/N	VOLTS	AMPS	WATTS	TEMP.
ME24-.005Mo	0.83	248	206	1400°C
ME24-.005Ta	1.47	230	338	1600°C
ME24-.005W	1.66	322	535	1800°C
Covered boat source				



Chrome Plated Tungsten Rods

We offer an effective, user friendly way to evaporate Chromium. The Chrome plated Tungsten rods are used for thin films of Chromium in the electronics and optics industries. The advantage of using Chrome rods over Chrome chips are better thermal efficiency, regulation of film thickness and elimination of spitting and spalling which can cause pinhole type defects.



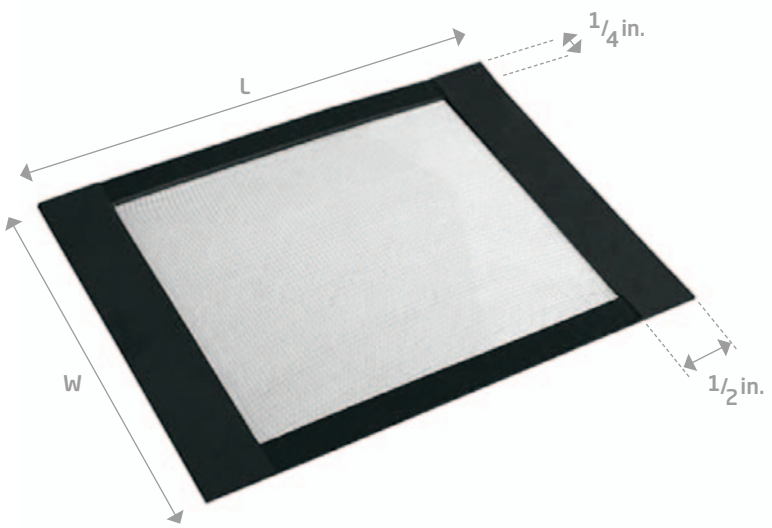
The rods are offered in the below configuration as standards.

P/N	VOLTS	AMPS	WATTS	TEMP.	C&D	L	A	B
CRW-1	1.05	78	82	1800°C	0.5	2	0.050	0.070
CRW-2	2.02	78	158	1800°C	0.5	4	0.050	0.070
CRW-3	2.40	77	185	1800°C	0.5	6	0.050	0.070

All dimensions are in inch.

Tungsten Screens

P/N
TM-1-2in. x 3in.
TM-1-2in. x 4in.
TM-1-3in. x 4in.
TM-1-3in. x 6in.
TM-1-4in. x 4in.
TM-2



TM-2 is the part number for Tungsten screen without frame.
Tungsten screen is available in random lengths x 6 inches wide.