

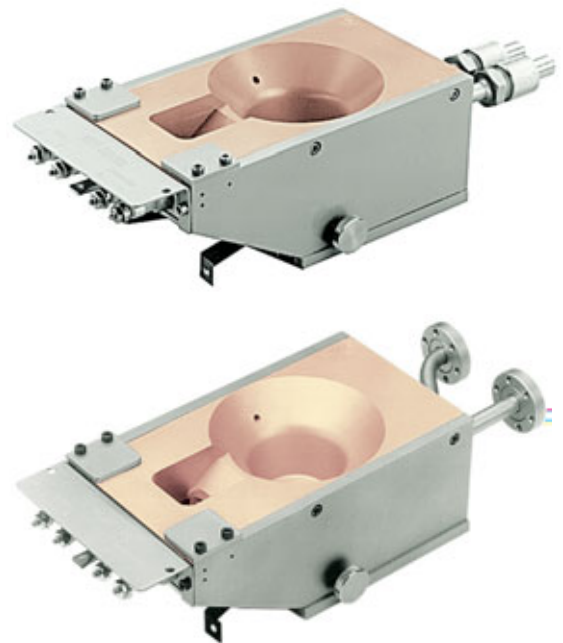
Temescal



TEMESCAL SINGLE-POCKET ELECTRON BEAM SUPERSOURCES

Temescal's single-crucible guns provide adjustable beam spot size, beam sweep capability, an easily replaced emitter and filament, a wide range of crucible sizes, and flush pole-piece design that minimizes evaporant buildup. Water cooling of the crucible creates a solid evaporant layer at the crucible-evaporant interface, preventing contamination of the evaporant by the crucible's copper.

Temescal's UHV-compatible electron beam sources combine the proven characteristics of our fixed-pocket SuperSources with ultra high-vacuum capability.



FEATURES & BENEFITS

- Uniform, efficient evaporation
- High reliability plus easy maintenance
- Adjustable beam spot size
- 270°, permanent-magnet deflection
- Longitudinal and lateral beam-sweep capability when operated with a sweep controller
- Flush pole-piece design minimizes evaporant build-up on source and facilitates loading of chunk materials
- Gun body made of water-cooled copper for maximum heat transfer rates
- Wire-feed capability for extended evaporant inventory
- Hopper-type crucible design, conical, with a flat bottom
- Plug-in emitter assembly facilitates filament replacement



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and Related Solutions

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TEMESCAL SINGLE-POCKET ELECTRON BEAM SUPERSOURCES

ALL SINGLE-POCKET SUPERSOURCES

The following specifications apply to all three standard single-pocket SuperSources (SFIH-270-1, -2, and -3) as well as to the three UHV models (UHVC-270-1, -2, and -3).

	-1 Sources	-2 Sources	-3 Sources
Typical evaporation rate	25 kÅ/min. of Al; source power, 10 kW; source-to-substrate distance, 10 in. (254 mm)	35 kÅ/min. of Al; source power, 6–12 kW; source to-substrate distance, 10 in. (254 mm)	50 kÅ/min. of Al; source power, 12–20 kW; source to-substrate distance, 10 in. (254 mm)
Max. power	10 kW at 10 kV	12 kW at 10 kV	20 kW at 10 kV
Emission current	0–1 A	0–1.4 A	0–2 A
Crucible capacity	7 cc	40 cc	156 cc
Weight	11.5 lbs. (5.2 kg)	14 lbs. (6.4 kg)	21 lbs. (9.5 kg)
Power Requirements			
High voltage	4–10 kVDC at 0–1 A	4–10 kVDC at 0–1.4 A	4–10 kVDC at 0–2 A
Filament power	12 V ac at 50 A	12 V ac at 50 A	12 V ac at 75 A
Cooling Water Requirements			
Inlet water lines	3/8-in. (9.5-mm) OD	3/8-in. (9.5-mm) OD	3/8-in. (9.5-mm) OD
Flow rate	Filtered, 3 gpm (11.4 l/m)	Filtered, 4 gpm (15.1 l/m)	Filtered, 5 gpm (18.9 l/m)
Max. inlet pressure	100 psig (7.0 kg/cm ²) at < 70° F (<21° C)	100 psig (7.0 kg/cm ²) at < 70° F (<21° C)	100 psig (7.0 kg/cm ²) at < 70° F (<21° C)
Min. pressure differential	40 psig (2.8 kg/cm ²)	40 psig (2.8 kg/cm ²)	40 psig (2.8 kg/cm ²)

STANDARD SINGLE-POCKET SOURCES ONLY

The following specifications apply only to the three standard single-pocket sources (SFIH-270-1, -2, and -3).

Operating pressure

Maximum	5×10^{-4} torr (6.7×10^{-4} mbar)
Minimum	1×10^{-8} torr (1.33×10^{-8} mbar)

Feedthroughs

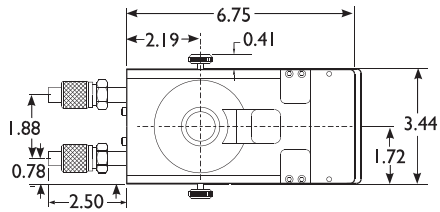
Two HV feedthroughs rated for 12 kV at 70 A
 One octal feedthrough rated for 600 V at 15 A per lead
 One dual-pass water feedthrough with 3/8-in. (9.5-mm) OD tub

UHS SOURCES ONLY

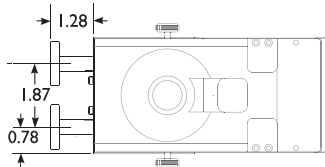
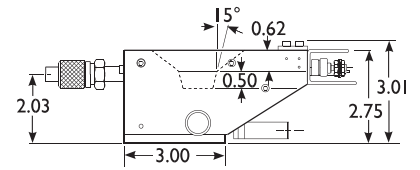
The following specifications apply only to the three UHV sources (UHVC-270-1, -2, and -3).

Flanges	1.33-in. Conflat, rotary
Bakeout temperature	395° F (200° C)

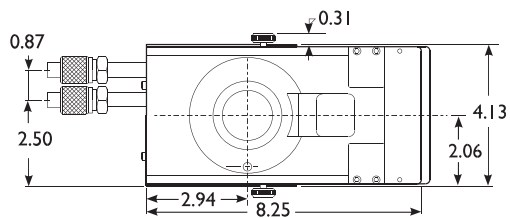
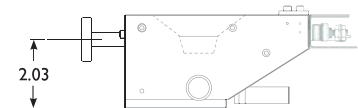
TEMESCAL SINGLE-POCKET ELECTRON BEAM SUPERSOURCES



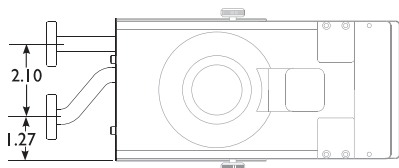
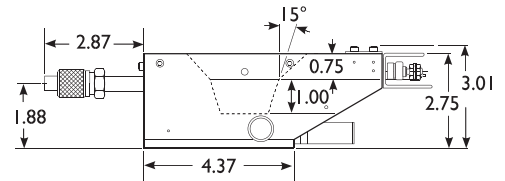
SFIH-270-1



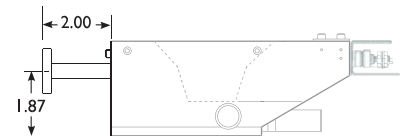
UHVC-270-1



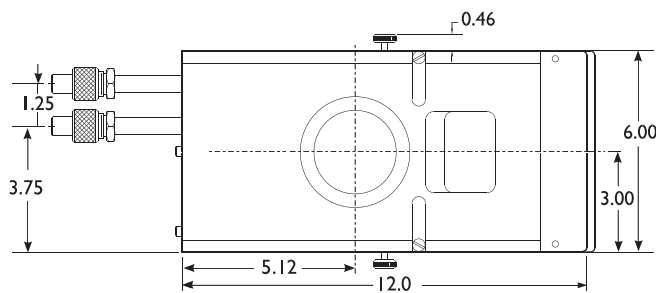
SFIH-270-2



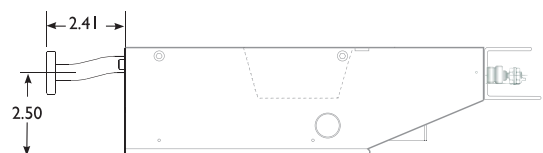
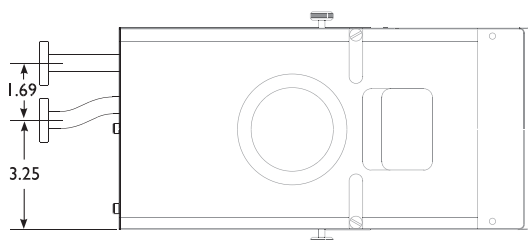
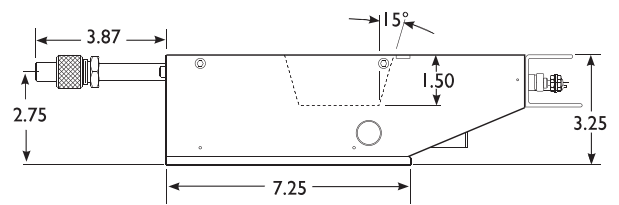
UHVC-270- 2



SFIH-270-3



UHVC-270-3



TEMESCAL SINGLE-POCKET ELECTRON BEAM SUPERSOURCES

ORDERING INFORMATION

Single-Pocket Supersources

MODEL	DESCRIPTION	PART NUMBER
SFIH-270-1	7-cc pocket	0204-8904-0
SFIH-270-2	40-cc pocket	0303-3014-2
SFIH-270-3	156-cc pocket	0303-9324-1
UHVC-270-1	7-cc pocket	0415-0384-0
UHVC-270-2	40-cc pocket	0615-4134-0
UHVC-270-3	156-cc pocket	0615-5984-0

Temescal single-pocket SuperSources are covered by one or more of the following U.S. patents: 3,177,535; 3,483,417; 3,710,072

Optional Crucible Liners

	7-cc Liners	40-cc Liners	156-cc Liners
DESCRIPTION	PART NUMBER	PART NUMBER	PART NUMBER
Tungsten, lanthanated	0627-6152-1L	0627-6152-7L	N/A
Molybdenum	0627-6162-1	0627-6162-7	0627-6162-8
ATJ Graphite	0627-6172-1	0627-6172-7	0627-6172-8
Poco Graphite	9998-9004-0	9998-9008-1	9998-9012-0

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