



Hollow Cathode Lamp Price List

Hollow Cathode Lamp Description

Varsal designs and manufactures a complete line of hollow cathode lamps to meet the strictest standards of most atomic absorption spectrometer instruments. We manufacture lamps of different sizes and with argon and/or neon gas fills to assure optimum results on a wide variety of instruments.

General Lamp Characteristics

Category	Data
Glowing starting voltage:	300 V
Radiation stability:	1% over 30 minutes
Size: 2" for Perkin-Elmer	Diameter: 50 mm, Length: 180 mm
Size: 1.5" lamps	Diameter: 38 mm, Length: 160 mm

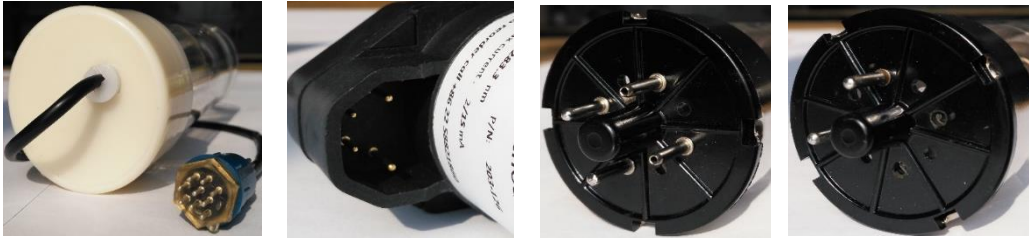
1.5" Hollow Cathode Lamp

- Regular 1.5" lamps for all systems except Perkin-Elmer system.
- Self-reversal 1.5" lamps for Shimadzu, Thermal Jarrel Ash, Leeman Labs whose AAS system requires self-reversal background correction abilities.
- Even though Varian systems do not require self-reversal lamps, they are suggested and recommended because of longer life time and higher intensity.

2" Hollow Cathode Lamp

- Uncoded (regular) 2" lamps can be used for all Perkin-Elmer atomic absorption spectrometers. Some models do require different conversion cables.
- Some models use a 9 – pin connector while the AAnalyst Series use a 4 –pin connector as pictured below. Please select the right lamp as pictured below for your instrument.

Hollow Cathode Lamp Listing and Prices



Element	Symbol	2" uncoded (9 pin) P/N	Price \$	2" uncoded (4 pin) P/N	Price \$	1.5" regular P/N	Price \$	1.5" self-reversal P/N	Price \$
Aluminum	Al	201-101	250	201-101-4	295	203-101	169	223-101	188
Antimony	Sb	201-102	295	201-102-4	330	203-102	169	223-102	208
Arsenic	As	201-103	345	201-103-4	380	203-103	199	223-103	239
Barium	Ba	201-104	250	201-104-4	289	203-104	175	223-104	198
Beryllium	Be	201-105	399	201-105-4	439	203-105	225	223-105	245
Bismuth	Bi	201-106	295	201-106-4	330	203-106	169	223-106	188
Boron	B	201-107	250	201-107-4	289	203-107	175	223-107	198
Cadmium	Cd	201-108	295	201-108-4	330	203-108	175	223-108	198
Calcium	Ca	201-109	250	201-109-4	289	203-109	169	223-109	188
Cerium	Ce	201-163	850	201-163-4	895	203-163	215	223-163	245
Cesium	Cs	201-164	850	201-164-4	895	203-164	215	223-164	245
Chromium	Cr	201-110	250	201-110-4	289	203-110	169	223-110	188
Cobalt	Co	201-111	250	201-111-4	289	203-111	175	223-111	198
Copper	Cu	201-112	250	201-112-4	289	203-112	169	223-112	188
Dysprosium	Dy	201-113	345	201-113-4	380	203-113	215	223-113	245
Erbium	Er	201-114	345	201-114-4	389	203-114	215	223-114	245
Europium	Eu	201-115	345	201-115-4	380	203-115	215	223-115	245
Gadolinium	Gd	201-116	345	201-116-4	380	203-116	215	223-116	245
Gallium	Ga	201-117	399	201-117-4	439	203-117	215	223-117	245
Germanium	Ge	201-118	399	201-118-4	439	203-118	215	223-118	245
Gold	Au	201-119	489	201-119-4	529	203-119	215	223-119	245
Hafnium	Hf	201-120	345	201-120-4	380	203-120	215	223-120	245
Holmium	Ho	201-121	345	201-121-4	380	203-121	215	223-121	245
Indium	In	201-122	295	201-122-4	330	203-122	215	223-122	245

Element	Symbol	2" uncoded (9 pin) P/N	Price \$	2" uncoded (4 pin) P/N	Price \$	1.5" regular P/N	Price \$	1.5" self-reversal P/N	Price \$
Iridium	Ir	201-123	760	201-123-4	795	203-123	215	223-123	245
Iron	Fe	201-124	250	201-124-4	289	203-124	169	223-124	188
Lanthanum	La	201-125	345	201-125-4	380	203-125	205	223-125	230
Lead	Pb	201-126	250	201-126-4	289	203-126	175	223-126	188
Lithium	Li	201-127	250	201-127-4	289	203-127	169	223-127	188
Lutetium	Lu	201-165	850	201-165-4	895	203-165	215	223-165	245
Magnesium	Mg	201-128	250	201-128-4	289	203-128	169	223-128	188
Manganese	Mn	201-129	250	201-129-4	289	203-129	169	223-129	188
Mercury	Hg	201-130	295	201-130-4	330	203-130	189	223-130	198
Molybdenum	Mo	201-131	250	201-131-4	289	203-131	169	223-131	188
Neodymium	Nd	201-132	345	201-132-4	380	203-132	215	223-132	245
Nickel	Ni	201-133	250	201-133-4	289	203-133	169	223-133	188
Niobium	Nb	201-134	250	201-134-4	289	203-134	175	223-134	198
Osmium	Os	201-166	850	201-166-4	895	203-166	320	223-166	348
Palladium	Pd	201-135	399	201-135-4	439	203-135	235	223-135	255
Phosphorus	P	201-136	345	201-136-4	380	203-136	275	223-136	298
Platinum	Pt	201-137	399	201-137-4	439	203-137	235	223-137	255
Potassium	K	201-138	250	201-138-4	289	203-138	175	223-138	198
Praseodymium	Pr	201-139	345	201-139-4	380	203-139	215	223-139	245
Rhenium	Re	201-140	399	201-140-4	439	203-140	275	223-140	298
Rhodium	Rh	201-141	669	201-141-4	705	203-141	329	223-141	348
Rubidium	Rb	201-167	850	201-167-4	895	203-167	175	223-167	198
Ruthenium	Ru	201-142	399	201-142-4	439	203-142	295	223-142	315
Samarium	Sm	201-143	345	201-143-4	380	203-143	215	223-143	245
Scandium	Sc	201-144	399	201-144-4	439	203-144	275	223-144	298
Selenium	Se	201-145	345	201-145-4	380	203-145	215	223-145	245
Silicon	Si	201-146	250	201-146-4	289	203-146	175	223-146	198
Silver	Ag	201-147	250	201-147-4	289	203-147	169	223-147	188
Sodium	Na	201-148	250	201-148-4	289	203-148	169	223-148	188
Strontium	Sr	201-149	250	201-149-4	289	203-149	175	223-149	198
Tantalum	Ta	201-150	250	201-150-4	289	203-150	205	223-150	230

Element	Symbol	2" uncoded (9 pin) P/N	Price \$	2" uncoded (4 pin) P/N	Price \$	1.5" regular P/N	Price \$	1.5" self-reversal P/N	Price \$
Tellurium	Te	201-151	295	201-151-4	330	203-151	205	223-151	230
Terbium	Tb	201-152	345	201-152-4	380	203-152	215	223-152	245
Thallium	Tl	201-153	295	201-153-4	330	203-153	215	223-153	245
Thulium	Tm	201-154	399	201-154-4	439	203-154	215	223-154	245
Tin	Sn	201-155	295	201-155-4	330	203-155	205	223-155	230
Titanium	Ti	201-156	250	201-156-4	289	203-156	169	223-156	188
Tungsten	W	201-157	250	201-157-4	289	203-157	175	223-157	198
Vanadium	V	201-158	250	201-158-4	289	203-158	215	223-158	245
Ytterbium	Yb	201-159	345	201-159-4	380	203-159	215	223-159	245
Yttrium	Y	201-160	345	201-160-4	380	203-160	215	223-160	245
Zinc	Zn	201-161	250	201-161-4	289	203-161	169	223-161	188
Zirconium	Zr	201-162	250	201-162-4	289	203-162	175	223-162	198
Calcium/Magnesium	Ca/Mg	201-181	350	201-181-4	385	203-181	259	223-181	299
Copper/Zinc	Cu/Zn	201-182	350	201-182-4	385	203-182	259	223-182	299
Aluminum/Strontium	Al/Sr	201-183	350	201-183-4	385	203-183	269	223-183	308
Silver/Cadmium	Ag/Cd	201-184	395	201-184-4	430	203-184	259	223-184	299
Copper/Beryllium	Cu/Be	201-185	495	201-185-4	530	203-185	325	223-185	375
Aluminum/Tin	Al/Sn	201-186	445	201-186-4	480	203-186	325	223-186	345
Platinum/Rhodium	Pt/Rh	201-187	995	201-187-4	1030	203-187	495	223-187	545
Selenium/Tin	Se/Sn	201-188	545	201-188-4	580	203-188	335	223-188	355
Sodium/Potassium	Na/K	201-189	350	201-189-4	385	203-189	269	223-189	298



Hollow Cathode Lamp Activator

Do you...

- Keep your HCL's on the shelf for a long time?
- Need to warm up your HCL's?
- Want to extend your HCL's lifetime?

If you answered "YES" to any of the above, you need a JH-B HCL Activator in your lab

The JH-B HCL Activator is a power supply specially designed to activate HCL's. In general, the emission intensity and stability of an HCL can diminish after prolonged storage (longer than 3 months), or after prolonged operation. After treatments with the JH-B HCL Activator, the durability of the lamp and the stability of the emission signal can improve dramatically.

Our HCL activator can be used as a pre-warming device for atomic absorption and atomic fluorescence systems, thereby shortening the pre-warming time required for routine multi-element testing. The activator can be used as a power supply for other stable light sources as well.

The HCL activator utilizes continuously adjustable constant-current circuits. HCL anodes consist of materials that can collectively absorb undesirable gaseous species internally during HCL excitation/emission. By setting the activator in 'Reverse (R)' position, the anode can be heated to absorb these gases, increasing the vacuum inside the lamp. This is critical for optimum lamp performance. Signal intensity and stability can also be maximized by activating the surface of the HCL's cathode. This can be done by adjusting the activator to "Forward (F)" position.

Description	Part Number	Unit Price
JHB-B HCL Activator	206-191	\$795
Coded Lamp Plug Adapter	206-192	\$35
Noncoded Lamp Plug Adapter	206-193	\$35

Varsal Instruments

363 Ivyland Road, Warminster, PA. USA

www.varsal.com

Tel: 215.957.5880 Fax: 215.957.9111 E-mail: info@varsal.com