

Krypton CW Arc Lamp

Specification Datasheet · TopRays Special Light Sources

The krypton CW arc lamp is a high-performance gas discharge source designed for continuous-wave solid-state laser pumping. Unlike pulsed xenon flash lamps, these lamps emit continuous, stable radiation in constant DC mode, delivering efficient optical pump energy to Nd:YAG lasers with a spectrum closely matched to the crystal absorption band.



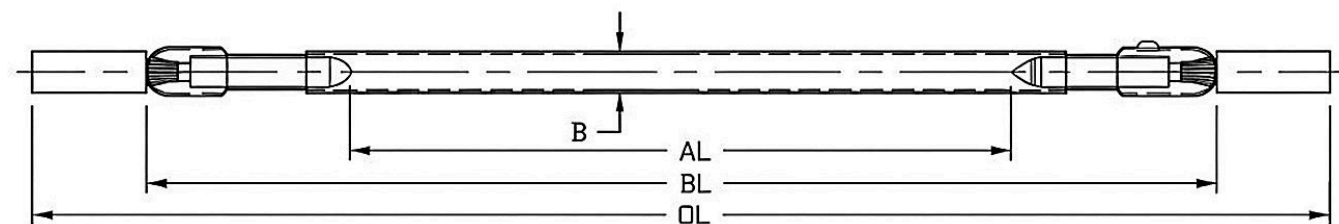
Key Features

- Well-matched spectrum: strong emission from 750 – 900 nm overlapping the main Nd:YAG absorption band for higher pump efficiency
- High-pressure design: operates at 4 – 8 atmospheres (set by the required lamp voltage); high fill pressure improves electrical-to-optical efficiency
- Patented cathode technology: cathodes are made in-house with advanced pressing and sintering, modified tungsten bodies, optimized density and a range of backfill methods — challenging conventional lamp life benchmarks
- Precision manufacturing and quality control: high-purity fused quartz envelopes, some models cerium-doped; tubes are strictly inspected for defects to ensure safe high-pressure operation; the engineering centre is equipped with X-ray and finite element analysis
- Mechanical design: the glass envelope shrinks onto the electrode assembly, improving heat conduction at anode and cathode; thin-wall glass can be used in the arc region for extra cooling
- Flexible supply options: constant-current or fixed-voltage supplies; modulation of CW (switching between sustaining and peak current for a few milliseconds) and quasi-CW (sinusoidal drive using the mains frequency) are supported

Applications

Application	Description
High-power CW Nd:YAG laser pumping	Core application — continuous, stable pump energy
Research and industrial processing	Materials processing, laser cutting, laser welding
Solar simulators	Stable, high-intensity continuous test light source
Airport runway lighting	High-reliability specialty lighting

Specifications



Arc lamp outline dimensions: AL arc length, BL body length, OL overall length, B bore (in millimetres).

Model	Bore (mm)	Arc (mm)	Body length (mm)	Total length (mm)	Design current (A)	Maximum design voltage (V)	Power (W)	Static impedance (Ω)
A	4	51	191	191	20	110	2200	5.5
B	4	76	140	160	20	190	3800	9.5
C	4	99	167	167	20	200	4000	10
D	4	148	223	223	20	290	5800	14.5
E	5	50	154	154	30	86	2600	2.87
F	5	84	145	175	30	155	4650	5.17
G	5	102	160	194	30	180	5400	6
H	5	121	223	233	30	240	7200	8
I	6	101	165	200	35	175	6125	5
J	6	170	255	377	40	255	10200	6.38
K *	4	110	177	320	AC	4500	—	—
L *	5	160	225	400	AC	6500	—	—
M *	6	280	347	450	AC	1000	—	—

Operating Notes

- Cooling: pulsed and DC-pumped Nd:YAG lasers require liquid cooling; inadequate cooling shortens lamp life and causes unstable operation
- Factors affecting lamp voltage: operating current, envelope bore, arc length, gas pressure and dead volume
- Polarity: DC-operated lamps are polarity sensitive; AC lamps are non-polarized
- Customization: most lamp types are custom products and can be engineered to your application