

Arc light sources

200 - 500 W Hg arc light source

- High intensity UV/VIS source
- Operates 200, 350 and 500 W Hg arc lamps
- Choice of different condensing optics for 3 sizes of collimated output beams in the UV-NIR
- Supports wide range of accessories

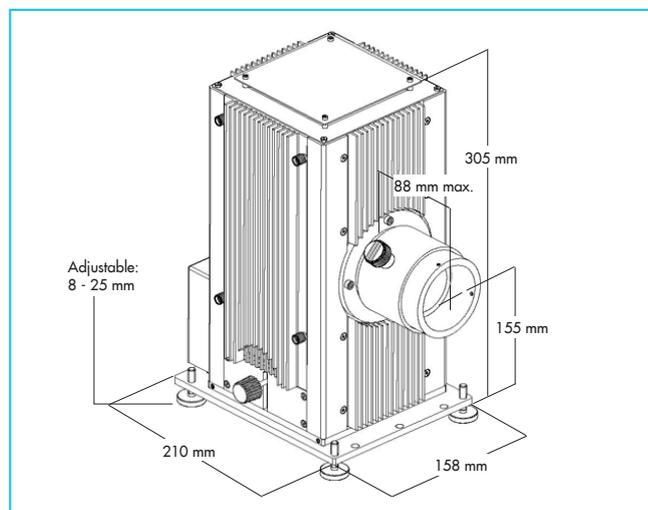
This source operates 200, 350 and 500 W Hg arc lamps. Mercury lamps have a spectrum with many strong lines from 240 to 600 nm followed by a declining continuum to 2.6 μm . The strong UV line output is especially useful for UV-VIS fluorescence spectroscopy and photactivation.

With the broad range of beam handling accessories, shutters, filters, fibers, lenses etc. which mostly attach directly to the condenser output, our sources prove to be a good versatile equipment in the laboratories of research and industry and are also good choice for specific applications in production control.

Lamp housing

Our 200 - 500 W arc lamp housing is much more than just a safe enclosure for the lamp. It operates different Xe-, Hg and Hg(Xe)-lamps under optimal and for these lamps necessary conditions. The housing holds the ignitor, collecting and collimating optics, rear reflector, cooling fan, external lamp and reflector adjusters and all the necessary electronics. Switching between the lamps only requires changing the lamp adapter to position the lamp in the center of the housing.

Our lamp housings have height adjustable feet which allow adjusting the optical axis by 15 mm. You can take the feet off and hard mount the housing to a bench, rail or optical table with the optics axis centered over the hole pattern to allow for easy integration with the rest of your setup. The height of the optical axis is then 155 mm.



Condensing optics

We offer different types of condensing lens assemblies. They differ in:

- Size (25, 35 or 50 mm beam diameter)
- Lens material and therefore usable spectral range
- F/number and therefore beam quality and collection/collimation efficiency

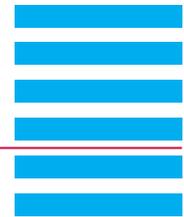
All condensers are intended for collimated beams, but can also be positioned for compensating focal length change due to dispersion and to produce a diverging or converging beam. If you need UV output, choose a quartz condenser. The IR-quartz condenser transmits from 250 - 3500 nm. The glass condensers do not transmit below 350 nm. For transmittance curves of these materials go to "Transmittance of optical materials" on www.lot-qd.com/lightsources ("Basics").

For best uniformity use a slightly diverging beam. For best quality images use the condenser as a collimator and a secondary focusing lens. In this case choose a condenser with high F/number. For details go to "Choosing the right condenser" on www.lot-qd.com/lightsources ("Basics").

Lamp and reflector adjusters

A spherical AlMgF_2 -coated reflector collects the output from the rear of the lamp and focuses it on or near the arc, for collection by the condenser. The output is increased by as much as 60 %.

The lamp and reflector adjusters are located on the outside of the housing. They let you precisely position the arc and its image for maximum collection, and allow you to place the arc where you want it. This eliminates the need to readjust any optics that is in the beam after it leaves the housing.



Arc light sources

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Power supply

The power supplies are reliable current sources for our arc lamps. Our power supplies are easy to use. A self explaining menu navigation allows easy setup of the light source and safe lamp operation. The power supply comes factory preset for the specific lamp ordered. The lamp is automatically operated within its admissible current/voltage range.

Cooling

Proper cooling is essential for correct lamp operation. The bulb temperature of arc lamps should not exceed 600 - 900° C, because at higher temperatures the bulb is not able to withstand the high gas pressure due to a temperature-related change of the quartz structure (recrystallization). Because of potential current conductor oxidation, the socket temperature must not exceed 230° C. Lamps of 200 W and higher require forced cooling of the base connection parts and bulb cooling is necessary for lamps of even higher wattage. Air blow on only one side of the bulb must be avoided because it generates additional stress in the quartz glass and unbalances the inner convection symmetry, resulting in turbulences. As a consequence the arc becomes unstable. Stress in the quartz glass also results in a risk of lamp burst.

Excessive cooling should also be avoided because it also provides increased arc instability due to turbulences in the bulb.

Our fan cooled housings provide baffled air flow to maintain the correct operating conditions for the listed lamps when operating in normal laboratory ambient. Overheating due to blocking of the cooling vents or an inoperative fan activates a thermostat interlock which shuts the system off.

A word on safety

Our Hg arc lamp sources emit dangerous levels of ultraviolet radiation. Exposure to UV, even for short periods, can cause severe skin and eye burns. Always wear protective eyewear and gloves or clothing, when working near these sources. Due to interaction of UV-radiation with wavelength of below 240 nm the atmosphere oxygen of the surrounding air is partially converted into ozone (O3). The maximum ozone production is in the spectral range of 175 - 200 nm.

When Hg arc lamps are running at operating temperature radiation of the arc below 240 nm is absorbed by the external cooler gas layers of the bulb. Therefore our Hg arc lamps do not produce ozone during operation. Only in the first minutes until the mercury is not com-

pletely vaporized, little ozone is produced. For more about UV safety go to "Ultraviolet safety considerations" on www.lot-qd.com/lightsources ("Basics").

Our lamp housings include safety features to prevent lamp damage and accidental exposure. A door interlock prohibits the operation of the lamp while the door is open.

Ordering information

To build a complete arc light source you will need: Lamp housing, condensing optic, lamp with appropriate adapter, power supply, electrical interface and cable between lamp housing and power supply. As an option you may choose the rear reflector for more output.

Housing and optics	
LSH302	200 - 500 W lamp housing, without optics
LSC205	UV quartz condenser; F/1.2; 25 mm aperture
LSC215	UV quartz condenser; F/1.3; 35 mm aperture
LSC210	UV quartz condenser; F/1.0; 35 mm aperture
LSC214	IR quartz condenser; F/1.3; 35 mm aperture
LSC216	Glass condenser; F/1.3; 35 mm aperture
LSC315	UV quartz condenser; F/1.3; 50 mm aperture
LSC310	UV quartz condenser; F/1.0; 50 mm aperture
LSC314	IR quartz condenser; F/1.0; 50 mm aperture
LSC311	Glass condenser; F/1.0; 50 mm aperture
LSC321	Rear reflector assembly

For transmittance/reflectance curves go to "Transmittance of optical materials" or "Reflectance and refractive index of optical materials" on www.lot-qd.com/lightsources ("Basics").

Arc lamps and adapters		
	Arc lamps	Required adapter
LSB620	200 W Hg	LSA362
LSB630	350 W Hg	LSA363
LSB640	500 W Hg	LSA364

For lamp specifications go to "DC short arc lamps, specifications" on www.lot-qd.com/lightsources ("Arc light sources").

Power supplies and interfaces	
LSN354	Power supply for 150 - 300 W arc lamps
LSN365	Power supply for 300 - 600 W arc lamps
LSE341	Interface with ignitor for 150 - 600 W arc lamps
LSE361	Interconnecting cable Hg

For power supply specifications go to "Arc lamp power supplies, specifications" on www.lot-qd.com/lightsources ("Arc light sources").