

DESCRIPTION OF LIGHT SOURCES

The Lamp housing - single beam -

consists of an aluminium shell developed by MULLER ELEKTRONIK-OPT1K. Serrations give the housing high stability and help dissipate the heat. The igniter unit is built into the housing. The power supply and lamp housing can therefore be operated a long distance apart without impairing the ignition performance. Electromagnetic disturbances during ignition are reduced to a minimum. Using micrometer screws the lamp can be adjusted during operation in 2 orthogonal optical planes.

The lamp housings can be equipped with an aspheric lens which is transparent above 320 nm. An optional condenser with 2 quartz lenses of „Spectrosil B“ is available for the spectral range 170 nm 3.5 µm. Both optics will form an image of the source at a distance of 150 mm to ∞ (in front of the housing).

The modular construction of the lamp housing makes it possible to add to or change the system with options and accessories. The 3 point mounting base plate is adjustable by knurled screws and easily exchanged for another base plate. Ventilator attachments provide sufficient cooling for powers greater than 150 W. From 1000 W they are equipped with an automatic temperature control device for activating the fan. The lamp housing can be equipped with a spherical front-face mirror. When correctly adjusted, the lamp power can be increased by about 30%.

The Lamp housing - double or multi beams-

As a result of the further development of the option S2 (second light output) we have now a lamp house with up to 4 light outputs. For this purpose the choice of the sides of the light outputs is free. With a configuration of two orthogonal outputs it is possible to mount two spherical rear reflectors in the respective opposite light outputs in order to increase the light intensity. As in the other lamphouses, lamps and mirrors can be precisely adjusted with micrometer screws.

The Lamp housing - water-cooled -

Water cooled lamp houses in a power range of 450 W - 1000 W are available . The cooling water streams through the cooling jacket and the lower lamp fixing of the arc lamp, the mount of the rear reflector and the sleeve of the condenser. The lamp housing is completely closed so that no ozone escapes from the lamp house. As there is no air circulation, the lens and mirror surfaces are kept clean. The advantage of this lamp house lies in the fact that the arc lamp is in a vertical position with a conventional optical configuration, that is to say with a spherical rear mirror and a condenser,

The Power Source

pulse width modulated switching technology operation:

The AC voltage of the system is rectified and smoothed. Transistors in a bridge circuit , which are fed alternately from a constant high frequency integrated circuit of about 20 kHz, produce a new high frequency AC voltage. This can be supplied to a correspondingly small and light transformer. After transformation, rectification and smoothing, the DC voltage is at the disposal of the discharge lamp. Because the lamp requires a constant current, both mains voltage and lamp current are measured and compared with a reference level. With any deviation from the nominal value, the integrated circuit produces correcting signals and modulates the circuit closing

time of the transistor bridge to keep the lamp current constant (Pulse width modulation).

Instead of an internal reference voltage, a reference voltage produced by the light of the lamp can also be used (LIX). In this case it would keep the light intensity of the lamp constant rather than the lamp current. Stability up to 0.1% is obtainable. As any variation from the nominal value only affects the circuit closing time of the transistors there is a minimum loss in transforming the AC current to the constant DC current for the lamp. The efficiency amounts to 7580%, i.e. the energy is very economically employed, the development of heat is minimal.

