

Micralign®

PROJECTION MASK ALIGNER
HIGH PRESSURE MERCURY ARC LAMP

(U.S. Pat. No. Re30,315)

Operating Instructions

CAUTION

This lamp, when energized, produces intense ultraviolet radiation, which is potentially harmful to the eyes and skin. During operation, it may burst and release poisonous mercury vapor since it operates at extremely high pressures (100 atmospheres) and high envelope temperatures (1000°C), near the bursting point of the fused silica envelope. Moreover, the high voltages and current required to operate this lamp are potentially lethal. Therefore, the lamp must be used only in a Micralign instrument that has been properly vented and has been connected to input power with interlocks intact. Failure to exhaust the lamp cooling air to the outside atmosphere (as described in the installation procedures of the appropriate Micralign Maintenance and Repair Instructions Manual) or any method that circumvents the system interlocks can result in a serious hazard.

To prevent eye irritation, operator actions should be restricted to the procedures described in the Micralign Instrument Operation Manuals. Even a short exposure to UV radiation from the lamp under any condition should be avoided.

In the event of a lamp rupturing during operation, proceed as follows:

1. Turn off the lamp using the Hg LAMP switch on the main power supply panel behind the door on the bottom left-hand side of the instrument, but do not disengage the MAIN POWER switch on this panel or remove power input into the machine. This will remove power from the lamp but leave the exhaust fan running so that it may continue to remove released vapor from the housing and to cool the housing down to ambient.
2. Wait 15 minutes for the housing to cool down and the vapor to dissipate before removing the lamp holder. Try to avoid spilling any mercury that might remain. Do not open the lamp holder door unless the exhaust fan is running.
3. Using rubber gloves, remove broken lamp pieces from the lamp holder and the lamp housing and place them in a vessel designed to contain mercury, and marked accordingly. A sealable vessel, containing HGX* and labeled "POISON-MERCURY" which is disposed of as a hazardous material, is recommended.

* Acton Associates, 100 Thompson St.,
Pittston, PA 18640

4. Remove beads of metallic mercury and small lamp fragments from the lamp holder and the lamp holder housing. These are most easily removed using a vacuum cleaner designed to contain mercury.**

** Model 88203 Contamovac or equivalent containing a Number 85211 ultra air filter and a Mersorb filter cartridge - Mine Safety Appliances, 230 North Braddock Ave., Pittsburgh, Pa. 15208, or equivalent.

5. In the event of contact with mercury, wash thoroughly using HGX hand cream and water.
6. Check lamp part no. before installing new lamp; P/N 644-0710 (with pigtail connector attached) or P/N 677-0040 (no pigtail), or 690-1052 (no pigtail) or 677-0872 (no pigtail). Lamps are not interchangeable. Replace lamp, taking care not to touch the glass envelope. Oil from fingers can cause lamp nonuniformity, and premature failure from carbonization and overheating.

CAUTION

Periodic inspection using a Mercury Vapor Detector is recommended for areas where mercury vapor contamination is likely. Depending on the susceptibility of the individual, the maximum limits of air contamination will vary. However, 0.1 milligram of mercury per 1 cubic meter of air is considered safe by most authorities. Since Mercury Vapor can be absorbed by the body, it is advisable that periodic examinations by qualified physicians and dentists be performed on individuals subjected to exposure. Examinations should include urinalysis for mercury.

Used lamps should be put in a vessel designed to contain Mercury, and marked accordingly. A sealable vessel containing HGX*** and Labeled "POISON-MERCURY" which is disposed of as a hazardous material, is recommended.

*** Acton Associates, 100 Thompson St.,
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THE PERKIN-ELMER CORPORATION WILL NOT
BE RESPONSIBLE FOR ANY SPECIAL OR
CONSEQUENTIAL DAMAGE RESULTING FROM USE
OF THIS LAMP

MERCURY ADJUSTMENT

Before installing the lamp be sure that the mercury is symmetrically divided between the electrodes. The following method is recommended:

1. Holding the lamp by the hexagonal base throw the mercury to the end that requires more mercury by a quick flip of the hand.
2. Then tap the hexagonal base until the mercury is approximately the same on both ends.
3. Clean the quartz envelope, if necessary, with acetone to remove any oils or fingerprints.
4. Refer to the Perkin-Elmer Operation Manual for instructions on loading the lamp into the Micralign instrument.

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