

Department of Mechanical Engineering University of Glasgow

Spectra-Physics Beamlok 2010 Argon Ion LASER, SCHEME OF WORK

START-UP/SHUT-DOWN PROCEDURE

Laser : Class 4, 10W, $\lambda = 488\text{nm}$, $\lambda = 514.5\text{nm}$, Ar Ion Laser (CW)
Responsible Person : Dr. James Sharp
Authorised Operators : Dr. James Sharp, Dr. Ian Watson

GENERAL PRECAUTIONS

1. You have to be a registered laser user to use this equipment and be trained to use this laser. Only registered laser users are permitted to use this laser. A laser request form needs to be completed prior to using the laser.
2. Laser users must be familiar with the manufacturer's and the Institution's safety information. General guidelines on using lasers can be found at <http://www.gla.ac.uk/schools/engineering/studentstaff/safety/>
3. When not in use the key to the laser (or other means of controlling access) should be kept separately from the laser, to prevent unauthorised use.
4. All beam paths shall be kept as short as possible and enclosed whenever reasonably practicable.
5. The area in which this laser is used should be a designated laser area, and have the appropriate warning notice on the door.

“WARNING” **ALL SAFETY PRECAUTIONS AND THE FUNCTION OF ALL CONTROLS AND INDICATORS MUST BE UNDERSTOOD BEFORE OPERATING THE EQUIPMENT.**

SPECIFIC CONSIDERATIONS RELATING TO THIS EXPERIMENT

START-UP PROCEDURE

1. Make sure that the laser safety blinds fitted to the window are closed.
2. Enable the laser cooling system : make sure the “Laser Circulating Pump” wall switch is on; make sure the “Chiller Remote” wall switch is on. Ensure that the flow rate is between the red min/max markers on the flow-meter scale.
3. Switch on the mains power to the transformer isolator and the laser control systems.
4. Turn transformer switch to “ON”
5. Switch on “Laser Safety System” box and press the “Set/Reset” button.
6. Obtain laser system key from Dr. Sharp, place key in the laser remote control unit key-switch and ensure that the following indicators are correct :
 - REMOTE is on
 - FLOW is off
 - CUR is selected as the MODE of operation
7. Set current control to its minimum position (fully anti-clockwise).
8. Put on laser safety goggles.
9. Turn key to switch the laser on.
10. Wait for a 30 minute warm-up period before operating the laser.

OPERATING PROCEDURE

DO NOT override the interlocks when entering or leaving the laboratory.

11. Open the interlock shutter to use the laser beam.
12. In operation, close the shutter before leaving the room or placing anything on the table or in/near the beam path.
13. DO NOT override the interlocks when entering or leaving the laboratory.

SHUT DOWN PROCEDURE

To switch off the laser:

14. close the interlock shutter
15. set current to minimum
16. use key-switch to turn off the laser, remove key and return to Dr. Sharp
17. turn transformer switch to "OFF"
18. switch off the mains power to the transformer isolator and the laser control systems
19. leave water running for 30 minutes while laser tube cools.

Full laser safety procedures should be observed during start up, operation and/or shut down of the laser. Interlocks must not be overridden. Panel covers, safety enclosures to be removed by trained personnel only. Maintenance to be carried out by trained personnel only.

IN THE EVENT OF AN EMERGENCY

Strike the large red 'EMERGENCY STOP' button on the laboratory wall. Make yourself familiar with the position of this switch prior to using the laser. Do not touch any of the equipment. Seek assistance and/or first aid immediately and notify Dr. Sharp and/or Dr. Watson.

IN THE EVENT OF A WATER LEAK

If at any time leaks are found or water is observed on the lab floor :

- ***if it is safe to do so***
 - switch off the laser power.
 - Use the emergency stop procedures if necessary
- ***if you are at all uncertain of your safety***
 - leave the lab immediately.
 - notify the nearest technician and/or Dr. Sharp
- ***if the laser is hot, the leak is not too severe and it is safe to do so,***
 - leave the water running until laser cools.
- ***if the laser is cool,***
 - turn off the water circulation.