How to setup a Littrow laser

Preperation

Before you start to setup/build the laser you should get everything together, that is needed.

You need

- Laser diode
- Collimation lense
- Grating
- Waveplate (lamda/2) with holder
- Thorlabs collimation tube
- Collimation tool
- Laser housing
- Wavemeter
- Thermal compounds

Getting started

Make sure you are earthed, to avoid ESD!

1. Put the laserdiode and the collimation lense into the collimation tube.
2. Now use the collimation tool to collimate the beam over a long distance.
3. When the beam is well aligned put thermal compound on the tube and put it into the holder.
4. Make sure that the beam orientation is in a way that as much as possible lines of the grating will be illuminated.
5. Put in the grating and look for a position where the lasing starts.
6. Now do a little bit of fine adjustment to set the correct frequency, using a wavemeter. When this is done fix the grating.
7. Use the heigth screw to find the lowest current value where the lasing process begins.
8. In the end put in the waveplate and align it to get the lowest current setpoint for the lasing process.