

JEOL I400 troubleshooter – no beam

Door Hetty Manenschijn, laatste update: 17.08.2023

You successfully put a sample in the TEM, but you do not get a beam. Please check the following:

1. Is the high tension (HT) on?
 - The button **[HT ON]** in the TEM centre (left, top) should be green
 - If the button is grey, double click it -> the high tension should turn on, the button will blink green, the beam current should increase to approximately 61 uA
 - If the button is grey and you can't click it, then there is problem, probably with the vacuum.
 - Check the vacuum status: on the vacuum status monitor, all vacuums should be green and say "Evac Ready". If not, wait a bit to see if the vacuum improves by itself. Otherwise, talk to Hetty
2. Is the filament on?
 - The button **[Beam ON]** in the TEM centre should be green
 - If not, double click on the grey button **[Beam Ready]** -> the filament will go on, the beam current will increase to approximately 66 uA
 - If the beam current does not increase, or is lower than 64 uA, talk to Hetty
 - If the button is grey, says **[Beam Not Ready]**, and you can't click it, then there is problem with either the HT (step 1) or the vacuum.
3. Is the beam blank off?
 - Check the lefthand subpanel: on the top left there is a button labeled **[Beam Blank]**. If the button is white with red letters, then the beam blank is on. Click on it to turn it off (black with white letters)
4. What magnification am I using? Am I looking at a grid bar?
 - Go to **[MAG]** mode (righthand subpanel), to 3000x. Move the sample around with the trackball. Do you see anything?
 - Go to **[LOW MAG]** (righthand subpanel), 100x. Take out the objective aperture (Instructions on page 10 of the user manual). Do you see anything?
5. Is the bundle too spread out?
 - Use the **[brightness knob]** (lefthand subpanel) to condense the beam.
6. Check the spot size?
 - The current spot size setting can be seen in the TEM centre, just below the **[HT ON]** and **[Beam ON]** buttons (it runs from 1 to 5)
 - Go to spot size 1: on the lefthand subpanel, the multifunction button should read **[spot size]**. Turn on the associated knob to go to spot size 1
 - If the button on the subpanel is not labeled "spot size", then choose 'beginner' in the configuration settings in the bottom of the left window of the TEM centre software (see user manual step 21). This should assign the spot size function to the multifunction button.

Talk to Hetty if you can't get a beam after following this troubleshooter: office HG01.222 (next to the coffee table), Hetty.manenschijn@ru.nl