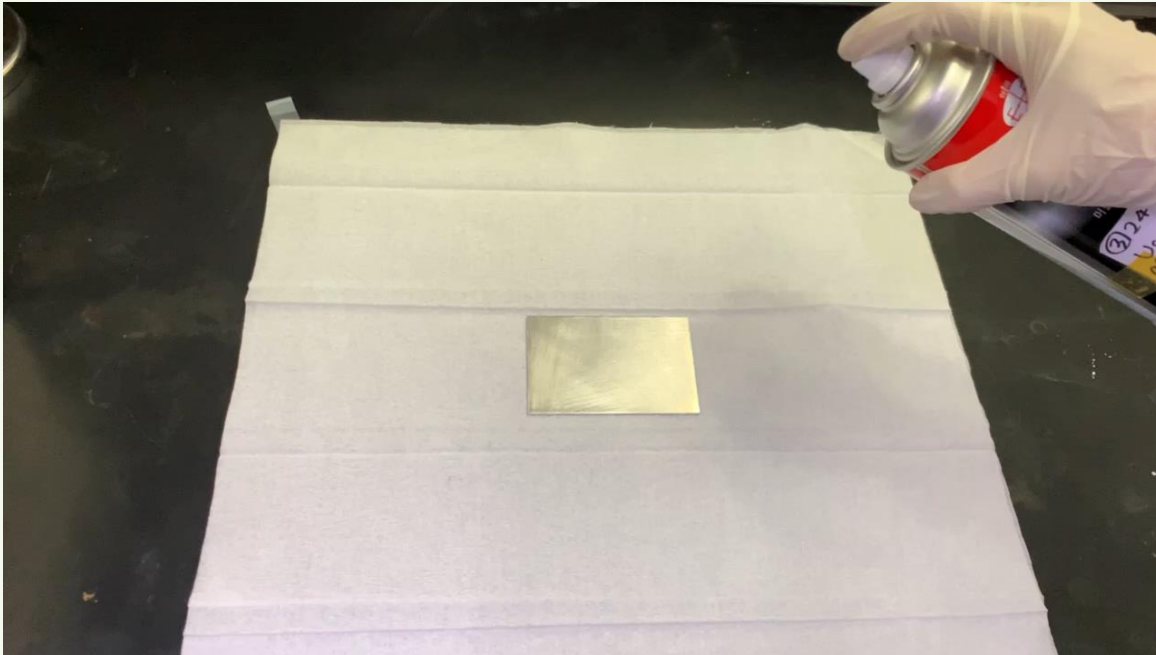


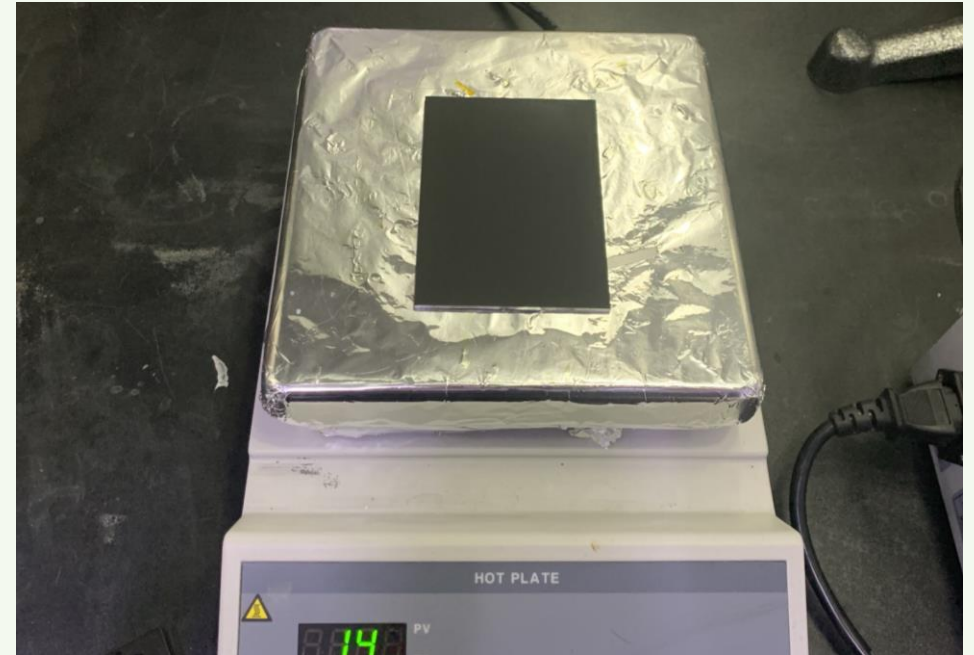
복사열전달 실험

1. Sample preparation

1.1 Aluminum plate (**100x70x2 mm**) painted by Graphite spray in a fume hood
Note: Thin and uniform layer of Graphite paint on the plate surface (see the video below)



1.2 After drying **30 mins** in the ambient air, heating the painted plate on a hot plate in **30 mins** at **150 °C**

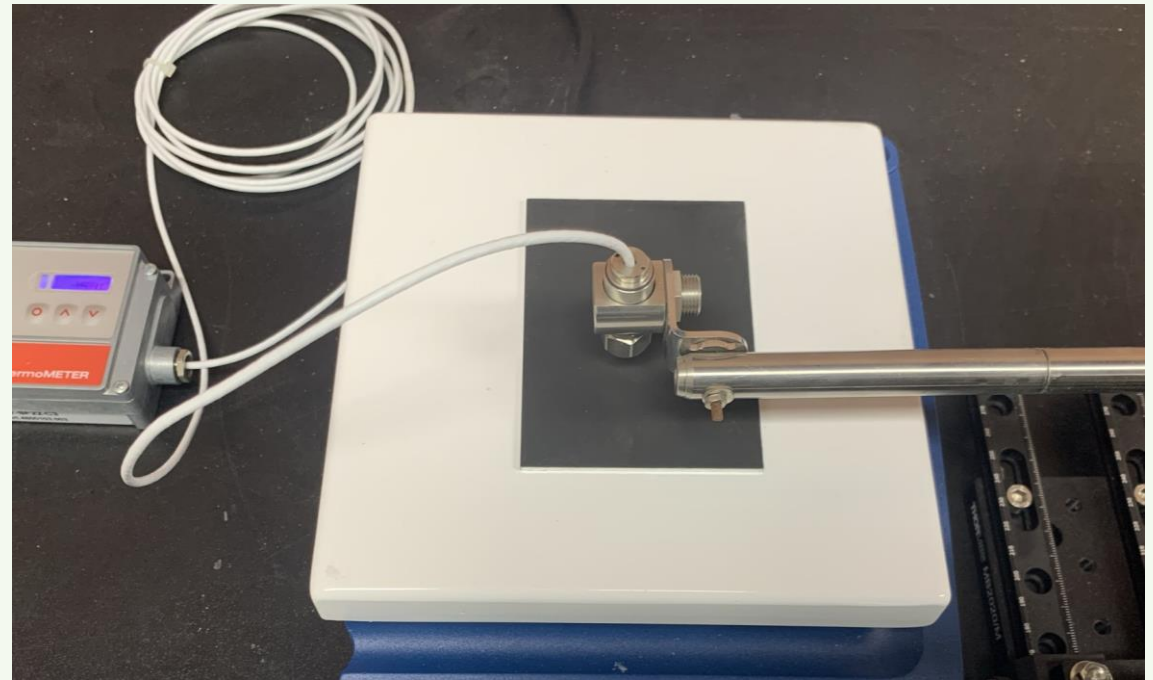


2. Emissivity Calibration

2.1 Turn on the hot plate then set the heating knob at the "10 am" position

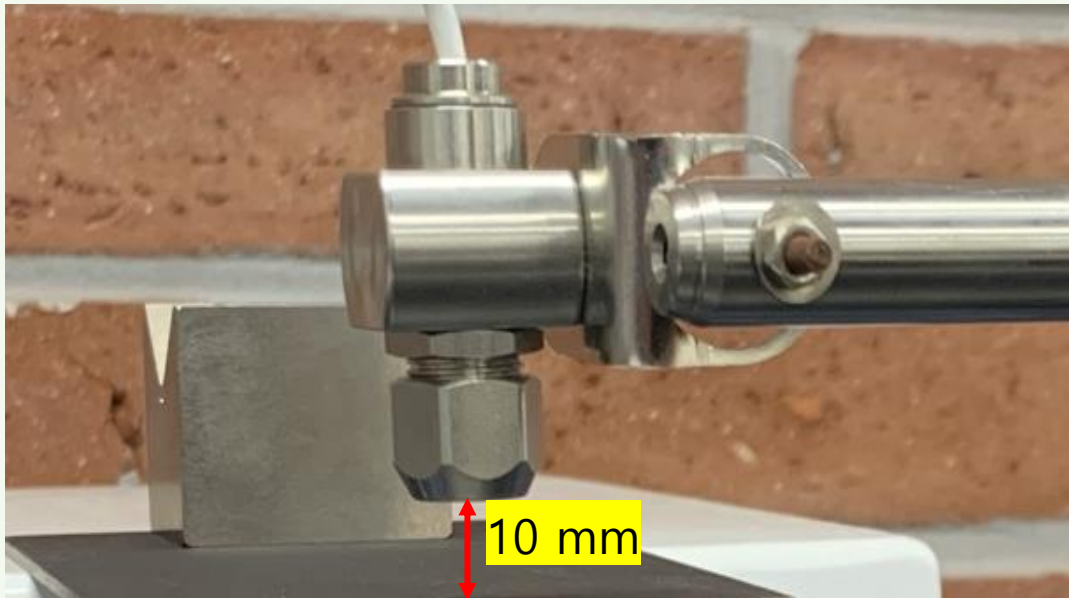


2.2 Put the aluminum plate on the hot plate center and wait for 15 mins to obtain stable temperature

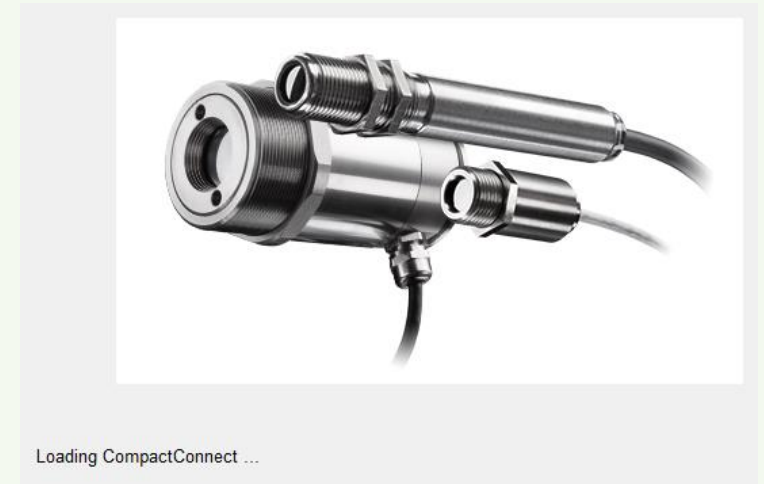


2. Emissivity Calibration

2.3 Adjust the height of the IR sensor to obtain the distance of **10 mm** from the aluminum plate surface

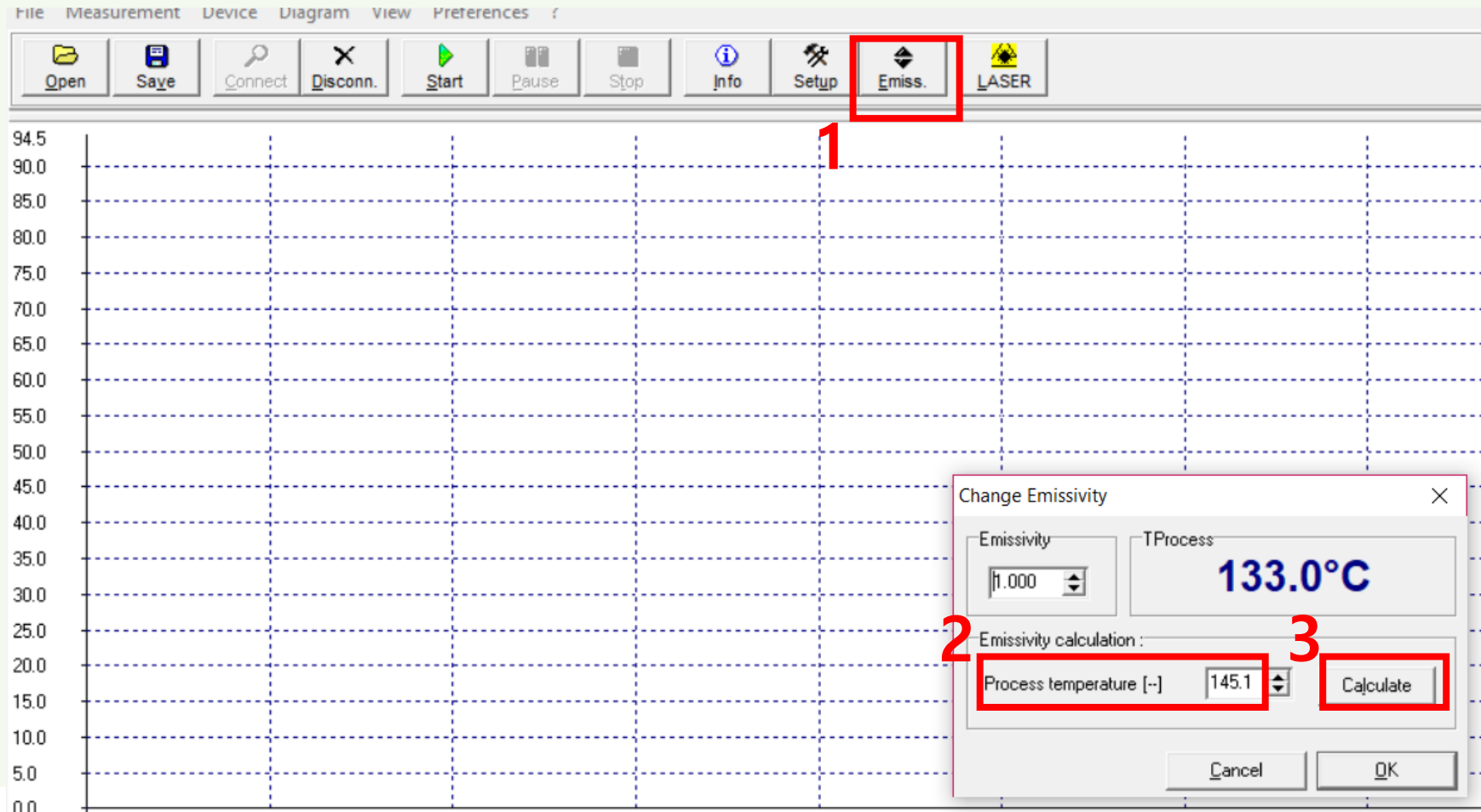


2.4 Connect the IR thermometer to the PC by USB port then open the **CompactConnect** software on the desktop



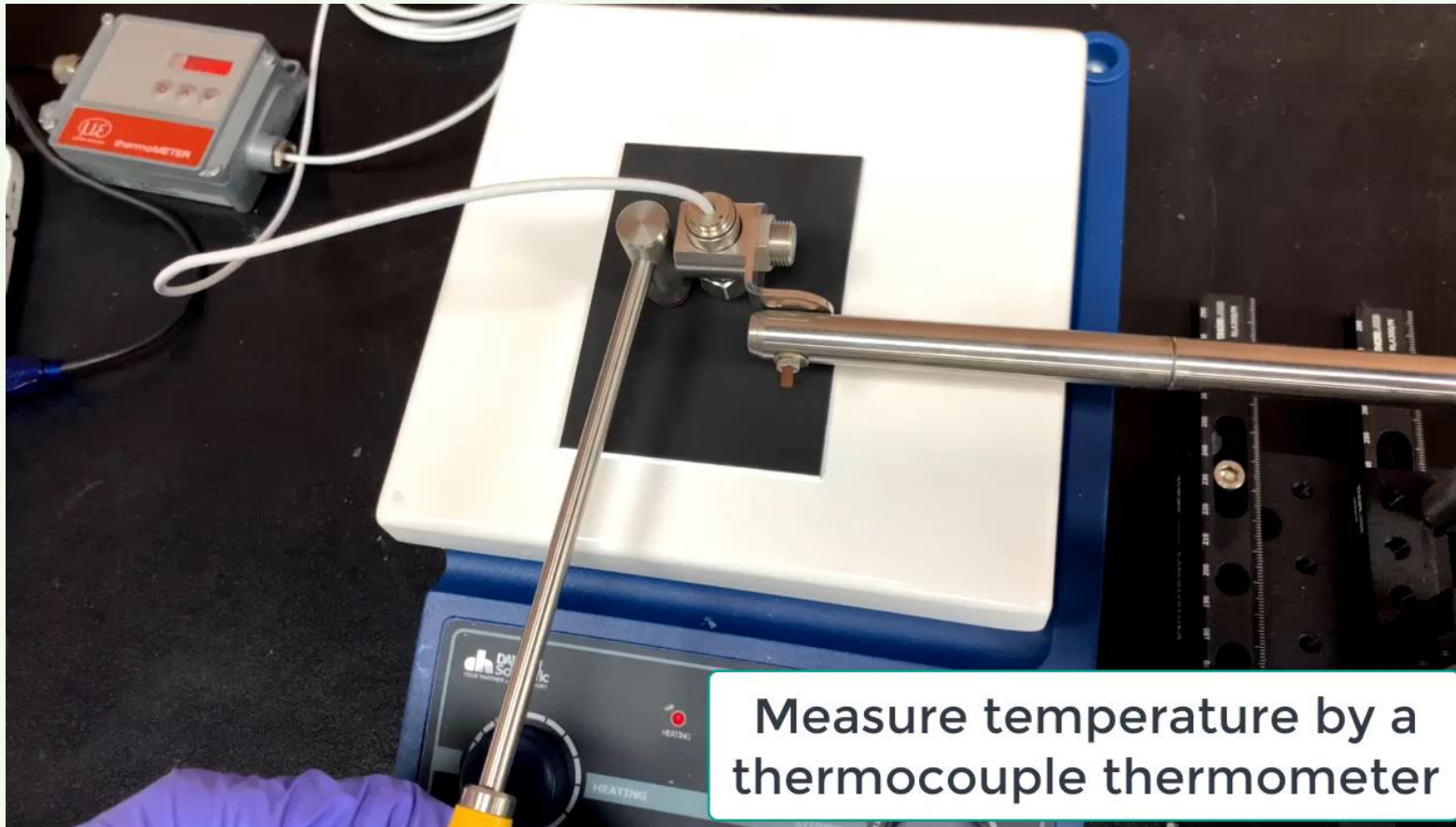
2. Emissivity Calibration

2.6 Click the “**Emiss.**” button on the **CompacConnect** software to change emissivity. Set the “**Process temperature**” by the temperature measured by a thermocouple thermometer on the surface of the aluminum plate, then click “**Calculate**” button, the software will calculate and update the emissivity.



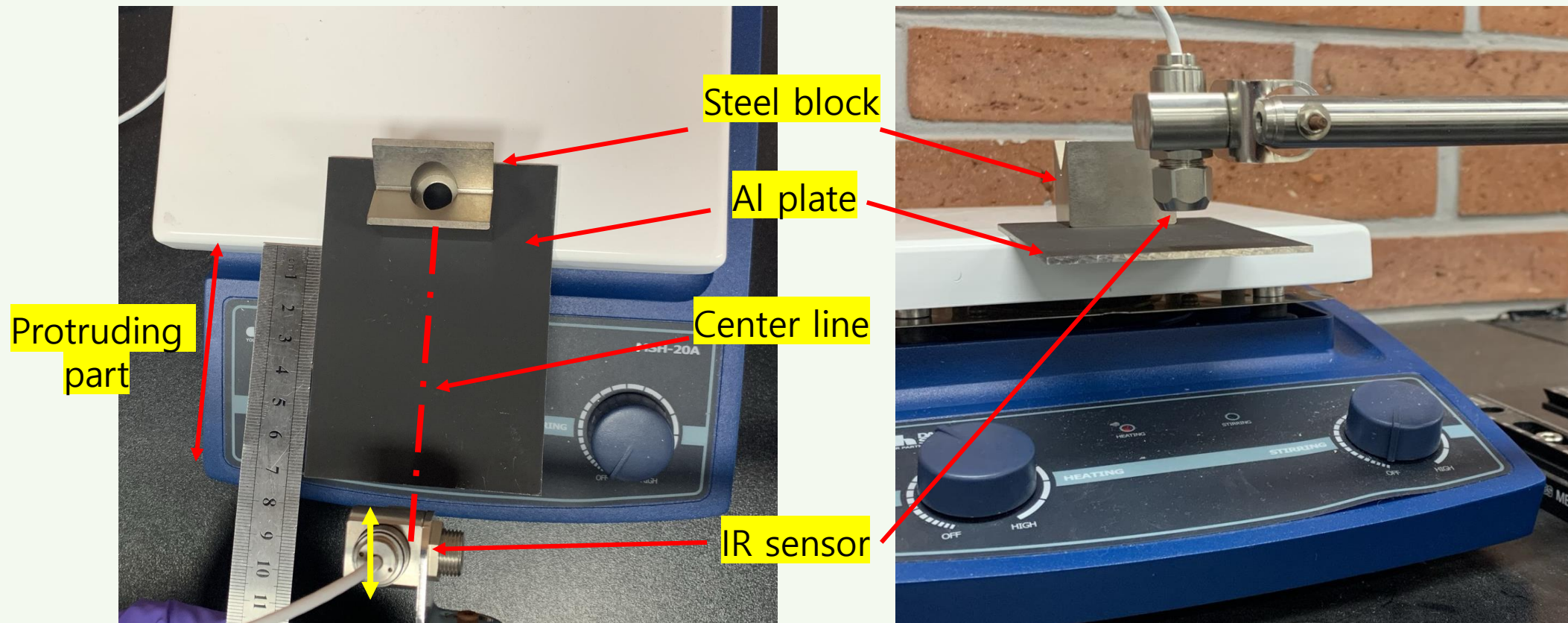
2. Emissivity Calibration

2.6 Click the "**Emiss.**" button on the CompacConnect software to change emissivity. Set the "**Process temperature**" by the temperature measured by a thermocouple thermometer on the surface of the aluminum plate, then click "**Calculate**" button, the software will calculate and update the emissivity.



3. Temperature measurement

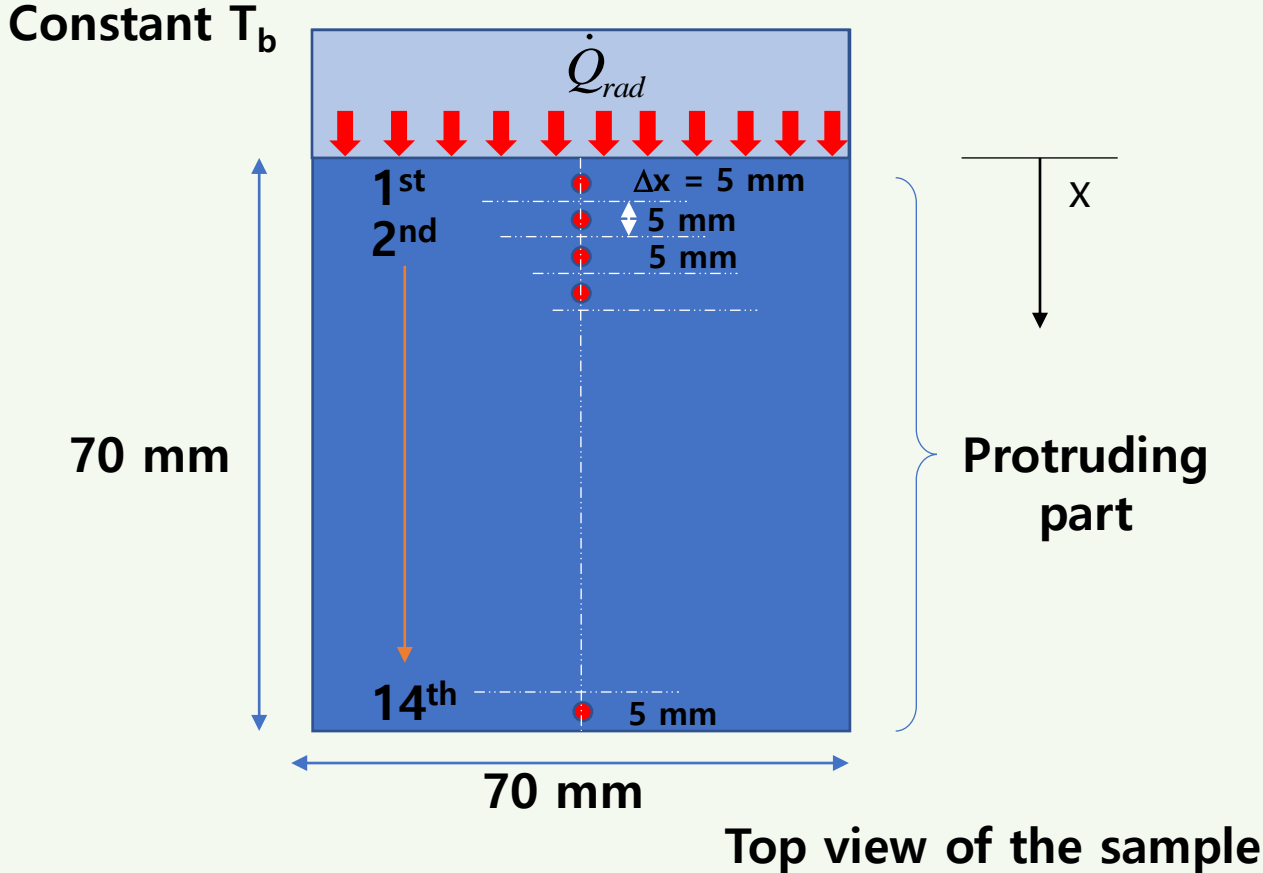
3.1 Experimental setup: The aluminum plate is fixed on the hot plate by a steel block. The protruding distance from hot plate edge is **70 mm**. The IR sensor is set above of the aluminum plate and can scan along the plate center line by moving on the rails.



3. Temperature measurement

3.2 Result: Measure temperatures of multiple points on the center line.

thickness: 2 mm



| Position(x) | Temperature (°C) |
|-------------|------------------|
| 1 | 117.4 |
| 2 | 114.7 |
| 3 | 112.4 |
| 4 | 110.6 |
| 5 | 108.6 |
| 6 | 107.3 |
| 7 | 105.6 |
| 8 | 103.6 |
| 9 | 102.1 |
| 10 | 101.2 |
| 11 | 100.9 |
| 12 | 100.4 |
| 13 | 100.1 |
| 14 | 98.3 |