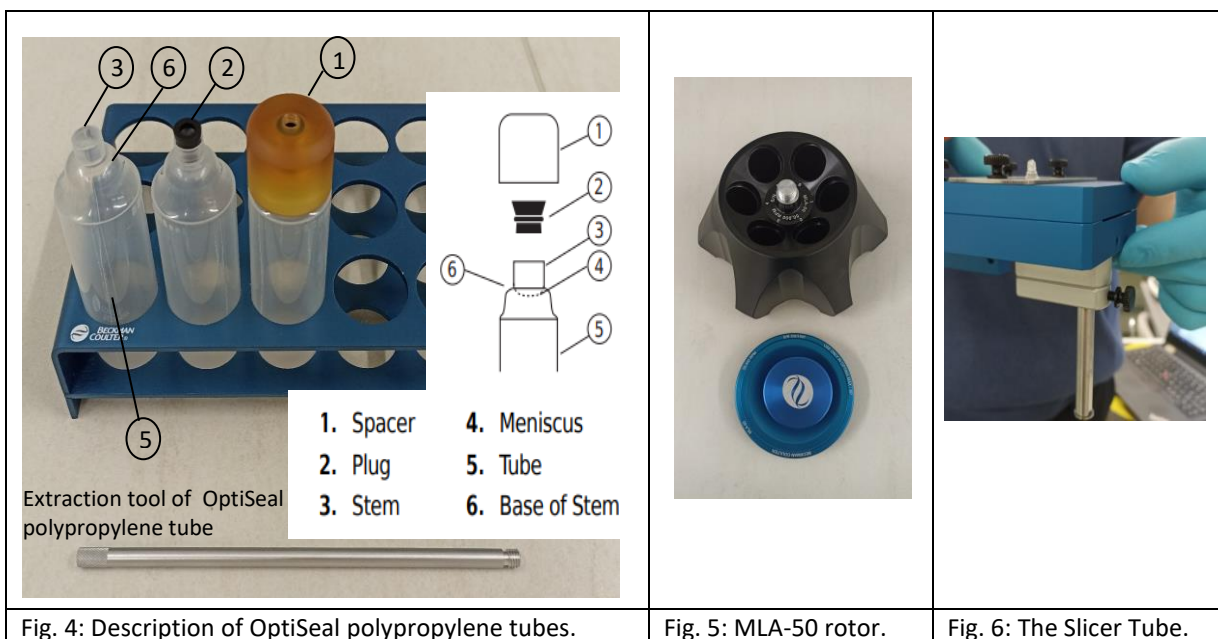
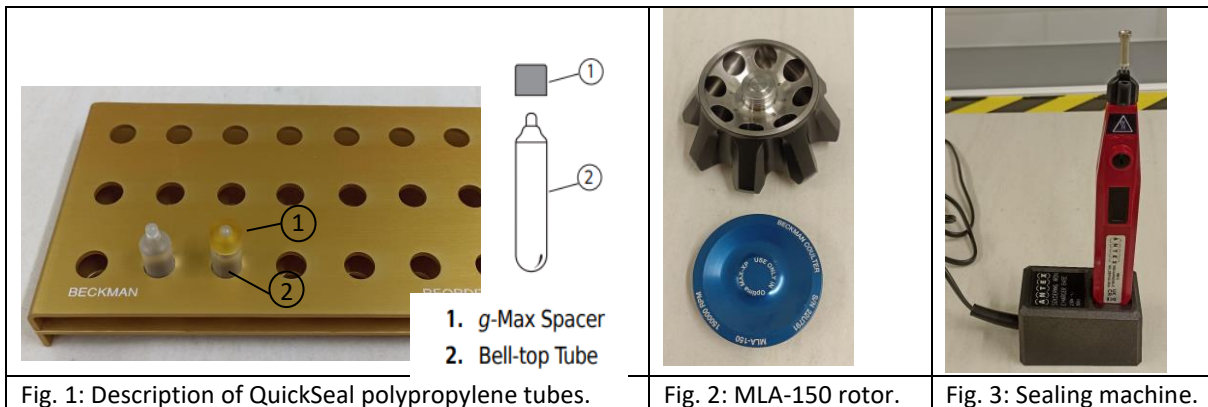


ULTRACENTRIFUGE Optima MAX-XP (Beckman Coulter)

The ultracentrifuge can work in the temperature range of **0 – 40 °C**. If you want to work at temperatures **below 10 °C**, keep the rotor in the fridge, while for temperatures higher than **25 °C**, put the rotor in the lab dryer at the required temperature. Two rotors for the polypropylene tubes, 2 ml, and 29.9 ml, are ready to use. **Do not centrifuge flammables!!!**

1. Prepare the QuickSeal polypropylene tubes (volume **2 ml**, Fig. 1). Fill the tube to double line on the QuickSeal tube with your solution (the protection to avoid tube damage). If you don't have enough solution, dilute it. It is possible to add mineral oil to reach maximum volume alternatively.
2. Use the rotor **MLA-150** (Fig. 2). **The maximum speed is 150 000 RPM**. These tubes are tested in the temperature range of 2 – 25 °C. A sealing machine must heat-seal QuickSeal tubes (Fig. 3, Manual for the Sealing Machine). Before putting it on the rotor, add the spacer on the tube top (Fig. 1). After centrifugation, cut the QuickSeal with the Tube Slicer (Fig. 6, Manual: L-TB-010CA 2020 Tube Slicer).
3. Use the OptiSeal polypropylene tube (**29.9 ml**, Fig. 4) with the rotor **MLA-50** (Fig. 5). **The maximum speed is 50 000 RPM**. These tubes are tested in the temperature range of 2 – 25 °C. It is unnecessary to seal the tube but close it with a special rubber plug and add the spacer on the top of the tube before putting it into the ultracentrifuge (Fig. 4).



GENERALLY:

1. Fill the tubes with the same volume of the solution of the same density. Always load the filled tubes into the rotor symmetrically. **IT IS NOT POSSIBLE TO CENTRIFUGE ONLY ONE TUBE!!!**
2. Lightly put the vacuum gas lubricate (cat. n. 335148) to the seal in the rotor cap and lubricate the seal around the chamber door of the ultracentrifuge to reach working condition on a vacuum. Spinkote lubricates (cat. n. 306812) are for the lubrication of metal parts.
3. If the tube is damaged during the centrifugation, wash the rotor with water and dry each rotor chamber.
4. Dry the ultracentrifuge chamber and the used rotor when you centrifuge at a lower temperature.

SWITCHING ON THE INSTRUMENT:

1. Switch on the ultracentrifuge (Fig. 7, on the right-hand side).
2. Switch off the vacuum (main display. Fig. 8).
3. Connect suitable rotor (MLA-150 or MLA-50). Put the rotor on the drive hup (detail of Fig. 7) carefully, to stabilize the rotor and turn till the first click (magnets for the rotor detection). A deep sound must be heard.
4. Close the chamber door, and switch ON the VACUUM (Fig. 8).
5. It is possible to set up the following parameters using Control Display (Fig. 8):
 - Choose the correct rotor.
 - Press the SPEED button to select the speed. The set speed appears above this button, which doubles as a display field for the actual run speed. The set speed and actual speed can be displayed in RPM or RCF.
 - RPM/RCF: Press the RPM/RCF button to toggle between RPM (Revolutions Per Minute) and RCF (Relative Centrifugal Force).
 - Press the TIME button to select the duration in hours and minutes.
 - Press the TEMP button to select the rotor temperature in °C. The set temperature appears above this button, which doubles as a display field for the actual run temperature. It is necessary to wait for temperature stabilization.
 - Accel/Decel: Displays a screen in which you can select the acceleration and deceleration rates.
 - VACUUM: Press the VACUUM button to start or stop the vacuum system. Before the centrifuge starts, **the vacuum should be 20 Micron**).
 - Press the START button to start the centrifugation.
 - Program — Displays a list of programmed runs and provides an interface to set up new programs.
6. Switch off the vacuum after the centrifugation is finished.
7. Open the chamber door. Get out the rotor; if necessary, dry the chamber and the rotor.
8. Close the chamber door. Switch off the instrument.



Fig. 7: Ultracentrifuge Optima MAX-XP. Details: the drive hup, USB and Switch ON/OFF.

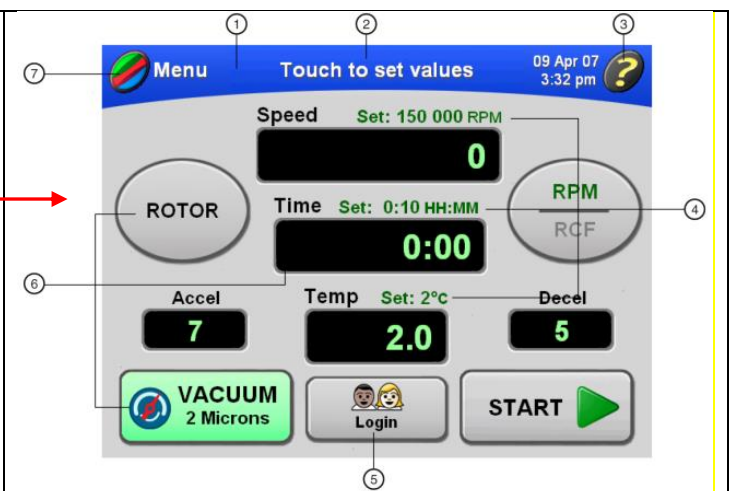


Fig. 8: Control display:

- | | |
|-----------------------|------------------------------|
| ① Windshield | ⑤ Login Button |
| ② Screen Instructions | ⑥ Buttons and Display Fields |
| ③ Help Button | ⑦ Menu Button |
| ④ Set Values | |

