1. The magnetic field inside the solenoid is determined by the formula

$$B = \frac{\mu_0 I}{d},$$

where $d = 2$ mm is the distance between neighboring wires. This implies

$$I = \frac{Bd}{\mu_0} = 2.39 \text{ kA}.$$

2. Considering the change of the melting temperature small, we get

$$\Delta p \approx \frac{\lambda \rho_w \rho_i \Delta T}{\rho_w - \rho_i} = 3.7 \text{ GPa},$$

where $\lambda = 336$ kJ/kg is the specific heat of melting for ice.